

Family Atherinidae

Body rather or quite elongate, subcylindrical or somewhat compressed. Eyes lateral, without adipose lids. Mouth cleft moderate, usually terminal, oblique, reaches to or beyond front of eye. Jaws equal or not. Teeth small, in jaws, sometimes on vomer, palatines or pterygoids, rarely absent. Opercular bones without spines or serratures. Gill openings wide, membranes not united, free from isthmus. Gills 4, slit behind fourth. Gill rakers usually long and slender. Pseudobranchiae present. Branchiostegals 5 or 6. Third and fourth upper pharyngeals joined together, with teeth.



1994

Air bladder present. No pyloric  
appendages. Vertebrae 32 to 60,  
of which 23 caudal. Scales moderate  
or small, usually cycloid,  
sometimes ctenoid. No lateral  
line, some scales often with pits  
or rudimentary mucous tubes.  
Two dorsals, well separated,  
first 3 to 8 slender flexible  
spines, second of 4 or 5 soft  
rays or spine and 3 to 6  
unbranched rays. Anal like  
soft dorsal, often larger,  
with weak spine. Caudal  
emarginate. Pectorals high,  
moderate or small. Ventrals  
small, usually abdominal,  
not far back, with small  
spine and 5 rays.



mostly small carnivorous fishes, abounding in great schools near the shores of temperate and tropical seas, a few in fresh water. Most have a silvery band along the sides, sometimes underlaid by dark pigment. Those of sufficient size are valued food fishes.



~~Atherina voeltzkowi Jatzow and Lenz~~

Atherina voeltzkowi Jatzow and Lenz,  
Abhandl. Senckenberg. Gesell.,  
vol. 21, p. 515, pl. 36, fig. 12, 1898  
(type locality, Zanzibar).

The description of this species,  
as well as the figure, show it  
is the young of some member of  
the Mullidae, as the types are  
given as only 90 to 80 mm long.



matter, and though it is true there are greatly in excess of any given for the species, the specimen is also apparently the largest hitherto reported and therefore count placed on record to show the greatest number observed. The pores in the lateral line are 73 to the caudal base and are a corresponding increase. That the species is subject to still greater range in variation than Boulenger or Barnard give me also believe Bodianus indelebilis Fowler a synonym, as it shows scales 72+; ~~pores~~ <sup>tubes</sup> 40, scales above 15, 29 below, and its color orange with head and back in front with small round golden spots. Cephalopholis obtusauris Evermann and Seale is another synonym, based on a slightly larger uniform



1997

Analysis of Genera

a. Dorsals rather close, height of first greater than interorbital; body rather deep and usually well or strongly compressed; vertebrae 33 to 37.

b. Bedotiinae. Caudal truncate or rounded; premaxillaries little protractile, crooked or with notch on lower edge. Bedotia.

b. Rheochlinae. Caudal forked; premaxillaries well protractile, oblique, straight, without notch on lower edge.

c. Trunk scaled. Rheocles.

c. Trunk with nape, occiput, on breast and belly naked. Rheocloides.

belly without fleshy keel; head scaled on sides and top, trunk entirely scaled; anal rays 6 to 18.



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b. Rheochlinae. Caudal forked; premaxillaries well protractile, oblique, straight, without notch on lower edge.

c. Atherininae. Dorsals well separated, height of first less than interdorsal; body more or less slender; vertebrae more numerous 39 to 56.

d. Body not sharply compressed; belly without fleshy keel; head scaled on sides and top, trunk entirely scaled; anal rays 6 to 18.



on leave  
in Athens  
right of  
other man  
at 1300  
feeling

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2998  
e.<sup>1</sup> Head without external dermal points or short spines anteriorly; vertebral more or less advanced.

f.<sup>1</sup> Lower gill rakers 16 to 28; maxillary usually reaches front of eye or beyond; teeth moderate, small, seldom absent from vomer. Atherina.

f.<sup>2</sup> Lower gill rakers 10 to 12; maxillary not reaching front of eye, short; teeth feeble or obsolete in jaws, none on palate. Craterocephalus.

e.<sup>2</sup> Snout and front of head with external dermal points or short spines anteriorly; vent little advanced. Atherion.

d.<sup>2</sup> Body sharply compressed; belly with fleshy keel; head and front part of trunk naked; anal rays 23. Iso.



1999

Genus Bedotia Regan

Bedotia Regan, Rev. Suisse Zool.,  
vol. 11, p. 416, 1903. (Type Bedotia  
madagascariensis Regan,  
monotypic.)

Body elongate, fusiform, slightly  
compressed. Head moderate,  
pointed. Snout rather long. Eye  
moderate, little advanced from  
middle. Mouth oblique, lower  
jaw little protruded. Premaxillaries  
little protractile, anterior part  
separated from lateral part by  
notch. Villiform teeth in jaws,  
front edge of vomer and on  
palatines. <sup>Scales cycloid, moderate.</sup> First dorsal of 4 or  
5 flexible spines, well separated  
from second dorsal, which with  
9 to 13 branched rays. Anal like



second dorsal but longer, with  
spine and 14 to 19 branched rays.  
Pectoral moderate, inserted little  
over middle in body depth.  
Caudal rounded or truncate.

Ventral moderate.

Fresh waters of Madagascar.



Family Bedotidal



# Analysis of species

a.<sup>1</sup> Ventral inserted below middle of pectoral; second dorsal I, 11; A, I, 18; caudal truncate. madagascariensis.

a.<sup>2</sup> Ventral inserted below last third of pectoral.

b.<sup>1</sup> Second dorsal rays 9 to 12, anal 14 to 17; caudal truncate. geayi.

b.<sup>2</sup> Second dorsal rays 13, anal 19; caudal somewhat rounded. longianalis.

a.<sup>3</sup> ~~Ventral~~ <sup>Ventral</sup> inserted below end of pectoral; dorsal rays 12 or 13, anal 17; caudal rounded. tricolor.



Genus Bedotia Regan

Bedotia Regan, Rev. Suisse Zool.,  
vol. 11, p. 416, 1903. (Type Bedotia  
madagascariensis Regan,  
=)



Bedotia madagascariensis Regan

Bedotia madagascariensis Regan,  
Rev. Suisse Zool., vol. 11, p. 416, pl. 14,  
fig. 2, 1903 (type locality, Madagascar).

— Boulenger, Cat. Fresh Water  
Fish. Africa, vol. 4, p. 77, 1916

(copied). — Jordan and Hubbs,  
Stanford Public, p. 20, 1919

(reference). — Pellégrin, Mém.

Acad. Malgache, vol. 14, p. 164, fig.  
89, 1933 (compiled).

— Regan, Ann. Mag. Nat. Hist., ser. 9,  
vol. 5, p. 421, May 1920 (Lake Rasoabé).



Serranus leopardus (part) Günther,  
 Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873,  
 p. 4.

Epinephelus somnerati (part) Barnard,  
 Ann. South Afr. Mus., vol. 21, 1927, p. 472  
 (Fowler's reference to Delagoa Bay  
 example).

Bodianus indelebilis Fowler, Journ.  
 Acad. Nat. Sci. Phila., ser. 2, vol. 12, 1904,  
 p. 521, pl. 17, lower figure. Padang, Sumatra.  
Cephalopholis obtusauris Evermann and  
Seale, Bull. Bur. Fisher., vol. 22, 1906  
 (1907), p. 77, fig. 12. Bacan. — Seale and  
Bean, Proc. U. S. Nat. Mus., vol. 33, 1907,  
 p. 243 (Zamboanga).



Depth 4; head  $3\frac{3}{5}$ . Snout  $2\frac{4}{5}$  in head from snout tip; eye  $4\frac{1}{8}$ ,  $1\frac{1}{2}$  in snout; mouth reaches  $\frac{1}{3}$  in eye, length  $2\frac{3}{5}$  in head from snout tip; interorbital 3, with eye slightly impinging in profile.

Scales 35 in lateral series; 8 transversely.

D. V — I, 11, third spine  $2\frac{1}{5}$  in total head length, last ray 2; A. I, 18, ninth ray 2; caudal  $1\frac{1}{6}$ , rounded behind; least depth of caudal peduncle  $2\frac{3}{4}$ ; pectoral  $1\frac{2}{5}$ , rays I, 12; ventral rays I, 5, fin  $1\frac{7}{8}$  in head.

Uniform brown. Length 90 mm.  
(Pellegrin.)

Madagascar.



2004

Bedotia geayi Pellegrin

- Bedotia geayi Pellegrin, Bull.  
Mus. Hist. Nat. Paris, vol. 13, p.  
205, 1907 (type locality, Mananjary,  
Madagascar); Bull. ~~Acad. Malgache~~  
~~France, vol. 55, p. 1908~~ Mus.  
Hist. Nat. Paris, vol. 13, p. 205, 1907  
(Mananjary, Madagascar).  
— Boulenger, Cat. Fresh Water Fish.  
Africa, vol. 4, p. 77, 1916 (compiled).  
— Jordan and Hubbs, Stanford  
Public., p. 20, 1919 (reference).  
— Pellegrin, Mém. Acad. Malgache,  
vol. 14, p. 164, pl. 3, fig. 4, 1933 (types;  
Tamatave, Fénérive; Farafangana,  
Karianga, Befotaka, Mananana  
River).



predorsal scales forward to front nostril. Vertical fin covered with small scales basally over rayed portions. Opercle with fine scales. Lateral line arched nearly parallel with back.

D. IX, 15, I, fourth spine  $3\frac{1}{2}$  in total head length, seventh ray 3; A. III, 9, I, second spine  $2\frac{7}{8}$ , sixth ray  $2\frac{1}{3}$ ; caudal  $1\frac{4}{5}$ , convex; least depth of caudal peduncle  $3\frac{1}{5}$ ; pectoral  $1\frac{2}{3}$ ; ventral 2.

Orange, many scales on body above pale dusky. Head and front of back with small, round, golden spots. Iris deep golden orange. Brown spot on soft dorsal edge at thirteenth ray equals pupil. Anal and ventral with narrow dusky edges. Caudal



Depth  $4\frac{4}{5}$  <sup>(3 to  $4\frac{1}{3}$  in description)</sup>; head  $2\frac{7}{8}$  (3 to  $3\frac{1}{3}$  in description). Snout 3 in head from snout tip; eye  $4\frac{7}{8}$  (3 to  $3\frac{1}{2}$  in description),  $1\frac{2}{3}$  in snout; maxillary reaches  $\frac{1}{2}$  in eye, length  $2\frac{1}{6}$  in head from snout tip; teeth small, villiform, form 2 large areas anteriorly in jaws, in narrow band on vomer and palatines; interorbital 2 to  $2\frac{1}{3}$  in head, very low. Lower gill rakers 12.

Scales 32 to 35 in lateral series; 9 or 10 transversely, 12 around caudal peduncle.

D. IV or V — I, 9 to 12, second spine  $3\frac{1}{5}$  in total head, last ray  $2\frac{1}{2}$ ; A. I, 14 to 17, last ray  $2\frac{1}{6}$ ; caudal  $1\frac{1}{2}$ , truncate or feebly emarginate; least depth of caudal peduncle 3; pectoral  $2\frac{1}{2}$ , rays I, 11; ventral rays I, 5, fin  $2\frac{4}{5}$  in total head length.



2006

Brown on back, yellowish below.  
Lower jaw black. Broad black  
axial lateral band, well  
marked posteriorly and extended  
on caudal base. Caudal orange  
yellow, terminally above and below  
dark red. narrow yellow basal  
line on anal, edged with red.  
Pectoral base gray. Length 91 mm.  
(Pellegrin)

Madagascar.



Bedotia longianalis Pellegrin

Bedotia longianalis Pellegrin,  
Bull. Soc. Zool. France, vol. 39,  
p. 178, 1914 (type locality,  
Mahambo, Eastern Madagascar)  
(no description). — Jordan and  
Hubbs, Stanford Public., p. 20,  
1919 (reference). — Pellegrin, Mém.  
Acad. Malgache, vol. 14, p. 166, pl.  
3, fig. 5, 1933 (type).



Depth  $2\frac{4}{5}$ ; head  $2\frac{2}{3}$ ; width  $2\frac{1}{3}$ .  
 Snout 4 in head from upper jaw  
 tip; eye  $5\frac{1}{2}$ ,  $1\frac{1}{5}$  in snout, greater  
 than interorbital; maxillary  
 reaches opposite hind eye edge,  
 expansion  $1\frac{1}{8}$  in eye, length 2 in  
 head from snout tip; teeth small,  
 inner depressible, outer strong  
 erect teeth in each jaw but little  
 enlarged; 2 canines in front of  
 each jaw; interorbital  $7\frac{1}{2}$ , nearly  
 level; upper opercular spine most  
 distant, lowest most advanced.  
 Gill rakers 6 + 16, lanceolate,  $\frac{2}{5}$   
 of eye; 4 above and 4 below  
 rudimentary.

Scales  $7\frac{1}{2}$  in lateral line to  
 caudal base; tubes 40 in lateral  
 line to caudal base; 15 scales  
 above lateral line, 29 below, 60



Depth  $4\frac{7}{8}$  ( $4\frac{1}{2}$ )<sup>in description</sup>; head  $3\frac{1}{4}$  ( $3\frac{1}{2}$ )<sup>in description</sup>. Snout  $3\frac{1}{2}$  ( $3\frac{1}{2}$ )<sup>in description</sup> in head from snout tip; eye  $4\frac{1}{5}$ ,  $1\frac{1}{2}$  in snout; maxillary reaches  $\frac{1}{4}$  ( $\frac{1}{2}$  in description) in eye, length  $2\frac{1}{8}$  in head from snout tip; teeth small, villiform, in broad band anteriorly in jaws, outer more or less flaring horizontally; broad band on vomer, narrow on palatines; interorbital  $2\frac{1}{2}$  in head, very low. Lower gill rakers 11.

Scales 34 in lateral series; 8 transversely, 12 around caudal peduncle.

D. V—I, 13, third spine  $2\frac{7}{8}$  in total head length, last ray  $2\frac{1}{2}$ ; A. I, 19, last ray  $2\frac{2}{3}$ ; caudal  $1\frac{1}{2}$ , convex behind; least depth of caudal peduncle  $2\frac{2}{3}$ ; pectoral 2, rays I, 11; ventral rays I, 5, fin  $2\frac{1}{10}$  in total head.

Brownish on back, yellowish below.



2009

Lateral silvery band, not <sup>deeply</sup> pigmented  
laterally. Fins grayish, ventrals  
yellowish. narrow short dark  
band on anal base. Median  
caudal rays dark. Length 92  
mm. (Pellegrin.)

Madagascar.



2010

Bedotia tricolor Pellegrin

Bedotia tricolor Pellegrin, Bull.  
Soc. Zool. France, vol. 57, p. 85, 1932,  
(type locality, Farony River, Manakara  
Province, Madagascar); Mém.  
Acad. Malgache, vol. 14, p. 166, pl. 3,  
fig. 6, 1933 (types).

Depth  $4\frac{3}{5}$  (4 in description); head  
 $3\frac{1}{2}$  ( $3\frac{1}{4}$  to  $3\frac{1}{3}$  in description). Snout  
3 in head from snout tip; eye  
 $4\frac{1}{2}$  ( $3$  to  $3\frac{1}{3}$  in description),  $1\frac{3}{5}$  in  
snout; maxillary reaches  $\frac{1}{3}$  in eye,  
length  $2\frac{1}{8}$  in head from snout tip;  
teeth small, villiform, 2 broad  
areas anteriorly, in narrow band  
on vomer and palatines; interorbital  
 $2\frac{1}{2}$  in head. Gill rakers 12 below.

Scales 35 or 36 in lateral series,  
9 or 10 transversely, 12 around  
caudal peduncle.



Bedotia longianalis Pellegrin

Bedotia longianalis Pellegrin, Bull.  
Soc. Zool. France, vol. 39, p. 178, 1914  
(type locality, Mahambo,

— Jordan and Hubbs, Review of  
Atherinidae, p. 20, December 18, 1916  
(reference). — Pellegrin, Mém. Acad.  
Malgache, vol. 14, p. 166, pl. 3, fig. 5,  
1933 (type).



D.  $\overline{\text{V}}$  -  $\overline{\text{I}}$ , 12 or 13, second spine  $2\frac{1}{2}$   
in total head length, last ray  $2\frac{1}{8}$ ;  
A.  $\overline{\text{I}}$ , 17, last ray 2; caudal  $1\frac{2}{5}$ ,  
convex behind; least depth of  
caudal peduncle  $2\frac{1}{2}$ ; pectoral 2,  
rays  $\overline{\text{I}}$ , 11 or 12; ventral rays  $\overline{\text{I}}$ , 5,  
fin  $2\frac{1}{2}$  in total head length.

Yellowish olive on back, paler  
yellowish below. Broad black  
axial lateral band to middle of  
caudal. Broad black band along  
soft dorsal and anal base and  
yellow band bordered with red.  
Caudal with black crescent,  
curved posteriorly, ~~inside yellow~~  
~~and red~~ then yellow and red  
and hind fin edge blackish.

Length 83 mm.

(Pellegrin.)

Madagascar.



Genus Rheocles Jordan and Hubbs  
Rheocles Jordan and Hubbs, Proc.  
 Acad. Nat. Sci. Philadelphia,  
 1919, p. 343. (Type Eleotris  
sikoral Sauvage, monotypic.)

Body elongated, fusiform, robust,  
 sides compressed. Head moderate,  
 pointed. Snout rather long. Eye  
 moderate, little advanced from  
 middle. Mouth oblique, lower  
 jaw protruding. ~~Premaxillary~~ <sup>reach to or below eye.</sup> without  
 notch on lower border. Teeth in  
 jaws small, conic, also on vomer and  
 palatines. Branchiostegals 9 to 11.  
 Pseudobranchiae present. Lower  
 gill rakers conic, less than 12.  
 Scales large, cycloid. First dorsal  
 of 6 spines, flexible, not extended  
 as filaments, second dorsal with  
 spine and 10 to 16 rays. Anal like



series visible when mouth closed;  
interorbital 3, rather low. Gill  
rakers  $5 + 7$ , short points,  $\frac{1}{4}$  of  
gill filaments, which  $1\frac{1}{4}$  in eye.

Scales 72 close along and above  
lateral line to caudal base; tubes  
50 in lateral line to caudal base,  
each with terminal expansion as  
double or bilobed; 11 above, 11  
above anal origin; 32 predorsal  
of which 19 forward to occiput.  
Suprascapula with denticulate  
edge. Scales with 8 or 9 basal  
radiating striae; circuli concentric,  
line; ciliated predorsal scales  
with 5 or 6 long slender erect  
denticles, each with 1 to 5 series of  
transverse basal elements.

D. XI, 24, I, fifth <sup>height,</sup> spine 3 in  
head, soft dorsal  $2\frac{1}{2}$ ; A. II, 8, I,  
second spine 3, third ray 2;  
caudal  $1\frac{1}{3}$ , median rays longest;



second dorsal, with spine and 14 to 16 rays. Caudal emarginate behind. Pectoral moderate, placed above middle in body depth. Ventral moderate.

Fresh waters of Madagascar.

### Analysis of species

- a.<sup>1</sup> Maxillary reaches below hind eye edge; second dorsal rays 16. siborae.
- a.<sup>2</sup> Maxillary reaches front eye edge; second dorsal rays 10 to 12. alaotrensis.



Family Rheoclidæ



2014

Rheocles siborae (Sauvage)

Eleotris siborae Sauvage, Hist.  
Nat. Madagascar, Poiss., p. 521,  
pl. 44c, fig. 2, 1891 (type locality,  
Madagascar). — Pellegrin, Bull.

Mus. Hist. Nat. Paris, vol. 13, p.

206<sup>5</sup>, 1907 (type);

Bull. Soc. Zool. France, vol. 39, p. 48, 1914  
(type).

Atherina siborae Günther, Zool.

Record, Pisc., 1891, p. 20 (reference).

— Boulenger, Cat. Fresh Water Fish.  
Africa, vol. 4, p. 76, 1916 (copied).

Rheocles siborae Jordan and Hubbs,  
Stanford Public., p. 20, 1919

(reference). — Pellegrin, Mém. Acad.

Malgache, vol. 14, p. 160, pl. 3, fig. 1,

1933 (type).



Variola louti (Forskål).

Perca louti Forskål, Descript. Animal., 1775, pp. 11, 40. Djeddah and Lohaja, Red Sea. — Bonnaterre, Tabl. Ichth., 1788, p. 133 (Red Sea). — Gmelin, Syst. Nat. Linn., vol. 1789, p. 1318 (Arabia). — Walbaum, Artedi Pisc., vol. 3, 1792, p. 338 (on Forskål).

Bodianus louti Suckow, Naturgesch., vol. 4, 1799, p. 517 (Red Sea). — Schneider, Syst. Ichth. Bloch, 1801, p. 332 (Red Sea). — Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 278, 286 (Arabia).

Serranus louti Rüppell, Atlas Reise nördl. Afr. <sup>1828</sup> Fische, 1828, p. 106, pl. 26, fig. 2 (Mohila). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 101 (Copang, Timor; Mauritius; Red Sea; Amboyna). — Playfair, Fishes of Zanzibar, 1866, p. 1 (Zanzibar). — Günther,



Depth  $5\frac{1}{3}$  ( $4\frac{1}{2}$  in description); head  $3\frac{1}{2}$ . Snout 3 in head; eye  $4\frac{1}{2}$ , ( ~~$3\frac{1}{3}$  in description~~),  $1\frac{2}{5}$  in snout; maxillary reaches opposite hind eye edge, length  $1\frac{7}{8}$  in head from snout tip; teeth small, villiform, form wide band in front of jaws; small teeth on vomer and palatines; interorbital very low. Gill rakers below 9.

Scales 39 in lateral series; 11 transversely, 14 around caudal peduncle. Head naked above.

D. VI - I, 16, second spine  $3\frac{1}{3}$  in total head length, soft dorsal height 3; A. I, 16, fin height  $2\frac{2}{3}$ ; caudal  $1\frac{1}{2}$ , emarginate, least depth of caudal peduncle  $2\frac{2}{3}$ ; pectoral 2, rays I, 16; ventral I, 5, fin  $2\frac{1}{8}$  in total head length.

Yellowish with scale edges on back brownish. Lateral silvery



2016

band present. First dorsal  
and pectoral gray, second  
dorsal and anal yellowish  
with black border. Pectoral  
yellowish. Length 108 mm.  
(Pellegrin.)

Madagascar.



2017

Rheocles  
Atherina alaotrensis (Pellegrin)

Atherina alaotrensis Pellegrin,  
Bull. Soc. Zool. France, <sup>vol. 39,</sup> 1914,  
pp. 46, 178 (type locality,  
Lake Alaotra, Madagascar);  
vol. 39, 1914, p. 223 (reference).  
— Boulenger, Cat. Fresh Water  
Fish Africa, vol. 4, p. 76, 1916  
(copied). — Regan, Ann. Mag. Nat.  
Hist., ser. 9, vol. 5, p. 421, May 1920  
(Lake Alaotra, Lake Rasovabé, Ambatohar-  
anana).

Rheocles alaotrensis Jordan and  
Hubbs, Stanford Public, p. 20,  
1919 (reference). — Pellegrin,  
Mém. Acad. Malgache, vol. 14, p.  
161, pl. 3, fig. 2, 1933 (types).



Cephalopholis pachycentron (Valenciennes).

Serranus pachycentron Valenciennes, Hist. Nat. Poiss., vol. 2, 1828, p. 295. East Indies.

Macleay, Proc. Linn. Soc. New South Wales, vol. 5, 1880, p. 314 (Port Darwin, Queensland). —

Serranus pachycentrum ~~Blanford~~, Cat.

~~Fishes Brit. Mus.~~, vol. 1, 1857, p. 116

~~Cephalopholis~~ Meyer, Ann. Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 9 (North Celebes).

Epinephelus pachycentrum Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 178

(type, Ceylon, Madras, Singapore, Malay Archipelago, Louisiades). — Beaufort,

Bijdr. Dierk., Amsterdam, 1913, p. 111

(Saonek, Vaigiu; Amboina). — Weber,

Siboga Exped., vol. <sup>59</sup> ~~65~~ <sup>Fische</sup>, 1913, p. 199 (Saleyer).

Petrometopon pachycentron Fowler, Journ.

Acad. Nat. Sci. Phila., ser. 2, vol. 12, 1904, p. 521 (Padang, Sumatra).



2018

Depth  $5\frac{1}{4}$  ( $3\frac{1}{4}$  to 4 in description);  
head  $3\frac{3}{4}$  ( $3\frac{1}{4}$  to  $3\frac{2}{3}$  in description).  
Snout 3 in head from snout tip;  
eye  $3\frac{4}{5}$  ( $3\frac{1}{3}$  to  $3\frac{3}{4}$  in description),  
 $1$  to  $1\frac{1}{4}$  in snout,  $1\frac{1}{4}$  to  $1\frac{1}{3}$  in  
interorbital; maxillary reaches  
opposite front eye edge, length  
 $2\frac{2}{5}$  in head from snout tip;  
small villiform teeth in front  
part of jaw, forming band in  
each; small teeth on vomer and  
palatines; interorbital very low.  
Lower-gill rakers 10 or 11.

Scales 38 to 42 in lateral  
series; 9 to 11 transversely, 12  
around caudal peduncle. Head  
above, throat and breast naked.

D. VI—I, 10 to 12, second spine  
 $2\frac{2}{3}$  in total head length, first  
branched ray  $2\frac{1}{5}$ ; A. I, 14 to 16,  
third branched ray  $2\frac{4}{5}$ ; caudal  $1\frac{1}{3}$ ,  
emarginate; least depth of caudal



2019

peduncle  $2 \frac{7}{8}$ ; pectoral  $1 \frac{2}{3}$ , rays  
I, 12 or 13; ventral I, 5, fin  $2 \frac{1}{5}$   
in total head length.

Greenish upon back, yellowish  
upon sides and below. Silvery  
lateral line, distinct posteriorly  
on lateral line and occupies  
longitudinal row of scales.  
Fins dusky gray, ventrals with  
yellowish. Length 140 mm.  
(Pellegrin.)

Madagascar.



Genus Rheocloides Nichols and La Monte

Rheocloides Nichols and La Monte,  
Amer. Mus. Novit. New York, No. 508,  
p. 9, December 1931. (Type  
Rheocloides pellegrini Nichols  
and La Monte,

Body elongate, fusiform, sides  
compressed. Head moderate.  
Snout rather long. Eye rather  
small, little premedian. Mouth  
little inclined, reaches below  
front of eye. Maxillary without  
notch on lower border. Teeth  
small, conic, outer larger,  
unequal, in jaws. Vomer and  
palate with teeth. Scales  
large, cycloid, absent from  
top of head, nape, chest, breast  
and belly. First dorsal of



2021

4 or 5 flexible spines and 12  
soft rays. Anal somewhat  
longer than second dorsal,  
with flexible spine and 16  
soft rays. Caudal forked.  
Pectoral placed high.  
Ventral origin below last  
fourth of pectoral.

One species, distinguished  
from *Rheocles* chiefly by its  
naked or scaleless anterior  
body.

*Rheocloides pellegrini* Nichols and  
La Monte

*Rheocloides pellegrini* Nichols and  
La Monte, Amér. Mus. Nat. New  
York, no. 508, p. 9, pl. 1, fig. 1,  
December 1931 (type locality, Andapa,  
North East Madagascar). — Pellegrin,  
Mém. Acad. Malgache, vol. 14, p. 162,  
pl. 3, fig. 3, 1933 (paratype).



Depth  $4\frac{1}{4}$  to  $4\frac{1}{2}$ ; head  $3\frac{1}{2}$  to  $3\frac{2}{3}$ .

Snout 3 in head; eye  $4\frac{4}{5}$ ,  $1\frac{3}{5}$  in snout,  $1\frac{1}{5}$  in interorbital; maxillary reaches  $\frac{1}{5}$  in eye, length  $2\frac{1}{10}$  in head; jaws equal; interorbital very low. Lower gill rakers 6 or 7.

Scales 33 to 36 in lateral series; 9 transversely, 12 around caudal peduncle. Few scales on opercle and cheek.

D. IV or V - I, 12, third spine 3 in head, soft dorsal height  $3\frac{2}{5}$ ; anal height  $3\frac{2}{5}$ ; (A. I, 15 or 16, caudal  $1\frac{1}{3}$ , forked, pointed lobes equal; least depth of caudal peduncle  $2\frac{1}{2}$ ; pectoral  $1\frac{7}{8}$ , rays I, 13; ventral rays I, 5, length  $2\frac{1}{2}$  in head.

Yellowish, with black median axial line. Black blotch at pectoral base. Unpaired fins dusky, paired fins clear. Length 85 mm. (Pellegrin.)  
Madagascar.



Genus Atherina Linnaeus

Atherina Linnaeus, Syst. Nat., ed. 10, pt. 1, p. 315, 1758. (Type Atherina hepsetus Linnaeus, monotypic.)

Membras Bonaparte, Fauna Italica, Pesc., vol. 3, pts. ~~XVII~~ - ~~XVIII~~, 1836. (Atypic.) (Type Atherina mochon Valenciennes, designated by Jordan, Copeia, no. 32, p. 47, 1916.)

Hepsetia Bonaparte, Fauna Italica, Pesci, vol. 3, fasc. ~~XVII~~ <sup>- XVIII.</sup> ~~XVIII~~ <sup>11</sup>, 1836. (Atypic.) (Type Atherina boyeri Risso, designated by Jordan, Copeia, no. 32, p. 47, 1916.) (Hepsetus Swainson 1839 different and not involved.)



Taeniomembras Ogilby, Proc.  
Linn. Soc. New ~~Zealand~~ South Wales,  
vol. 23, 1898, p. 41. (Type Atherina  
microstoma Günther, monotypic.)

Atherinomorus Fowler, Proc.  
Acad. Nat. Sci. Philadelphia,  
1903, p. 730. (Type Atherina  
lateiceps Poey, orthotypic.)

Pranaseus Whitley, Mem. Austral.  
Mus., vol. 10, pt. 1, p. 9, August  
28, 1930. (Type Pranaseus ogilbyi  
Whitley = Atherina pinguis  
Lacépède, monotypic.)



Blay, Fisher of India, Pt. 1, 1875, p. 26,  
pl. 7, fig. 3; Fauna Brit. India, vol. 1,  
vol. 8, 1876-77, pl. (70) 288, fig. 3. —

(Amboina, Nagai, New Guinea);  
Java, Celebes, Sumatra, Batak,  
Borneo, vol. 7, 1873-76, p. 24. (Amboina,  
note route to Soerabaya, near Soerabaya, Ind.

D. X, 9, fourth spine  $2\frac{1}{3}$  in head,  
first ray  $2\frac{3}{4}$ ; A. III, 9, second and  
third spines subequal,  $2\frac{7}{8}$  in head,  
first ray  $2\frac{1}{8}$ ; caudal  $1\frac{1}{4}$ , little  
emarginate; least depth of caudal  
peduncle  $2\frac{2}{3}$ ; pectoral  $1\frac{1}{10}$ ; ventral 2.

Yellowish, with silvery reflections.

Head brown. Gorge and fins rosy.

(Sawage.)

Bourbon, Delagoa Bay. The type, obtained  
by Gaimard, was 175 mm. long. Sawage  
says this species is characterized by the  
short snout and the convex front profile  
above the eye.



Body elongate, partly cylindrical or feebly compressed, belly rounded. Head well compressed, rather attenuated. Mouth oblique, short. Mandible small, weak. Teeth small, conic, in jaws, on vomer and palatines. Vertebrae 43 to 56. Scales cycloid, moderate to rather large, extend on parts of head. Dorsal spines feeble, 5 to 9. Soft dorsal and anal opposite, similar. Pectoral short. Ventral inserted well behind pectoral base.

Widely distributed in the warm seas of the globe.



Epinephelus microprion Bleeker, Atlas  
Ichth. Ind. Néerl., vol. 7, 1873-76, p.  
39, pl. (2) 280, fig. 1 (Sumatra, Batu,  
Lias, Java, Bawean, Celebes, Halmahera,  
Batjan, Ternate, Buru, Timor, Ceram,  
Amboina, New Guinea).

Epinephelus boelang (non Valenciennes)  
Bleeker, Atlas Ichth. Ind. Néerl.,  
vol. 8, 1876-77, pl. (68) 346, fig. 5.



I am here unable to properly<sup>2026</sup>  
assign the various species to  
the genus

The three following species so  
imperfectly noticed that they are  
here included only for  
completeness:



Atherina <sup>v</sup>  
~~Haplochromis~~ ~~waigiensis~~ <sup>v</sup> ~~waigiensis~~ & Duoy and Gamard <sup>1827</sup>

Atherina <sup>v</sup> waigiensis Duoy and Gamard,  
Voy. Uranie, Zool., p. 335, 1825

(type locality, Waigiu; Ramals).  
— Günther, Cat. Fish. Brit.

Mus., vol. 3, p. 392, 1860 (reference).

— Jordan and Seale, Bull. Bur.

Fish., vol. 25, p. 216, 1905 (1906)



lower side of

(To Mr. Rodolphe Meyer de  
Schauensee, in slight  
appreciation of his investigation  
of the natural history of Siam.)

Deschauseecia chryseus, new  
species. Figure 117.

Depth  $2 \frac{1}{5}$ ; head  $2 \frac{7}{8}$ , width  
 $2 \frac{1}{4}$ . Snout  $3 \frac{7}{8}$  in head from  
snout tip; eye 4,  $1 \frac{1}{10}$  in snout,  
 $1 \frac{1}{2}$  in interorbital; maxillary  
reaches half way to eye, length  
 $5 \frac{1}{2}$  in head from snout tip.

teeth conic, small, 14 in snout  
forward to snout of which 38  
below to anal base, 44 predorsal  
above lateral line to dorsal origin,  
line to caudal base; 14 scales  
scales 50 above along lateral  
 $1 \frac{1}{2}$  in gill filaments, which  $2 \frac{2}{3}$  in eye.  
gill arch, slender, well compressed.



2028

Atherina cylindrica Klunzinger

Atherina cylindrica Klunzinger,  
Verh. Zool. Bot. Ges. Wien, vol. 20,  
p. 834, 1870 (type locality, Red Sea).

— Sauvage, Hist. Nat. Madagascar,  
Poiss., p. 407, 1891 (reference).

Valenciennes, Hist. Nat. Poiss., vol.  
10, p. 453, 1835 (type locality,  
Waigiu).



to blackish ocellated saddles on  
caudal peduncle above. Caudal with  
2 dusky oblique subterminal bars  
which converge behind or form a  
lunate band.

Indian Ocean, Mascarene Islands,  
India, East Indies, China, Melanesia,  
Polynesia.



Body cylindrical. Above head less wide, its vertex without keel.

D. VII - I, 9; A. I, 13; pectoral short, not  $\frac{1}{6}$  of body.

Back sky blue and silvery. Red <sup>band</sup> separating above tints tint of back from silvery streak of side. Belly whitish. Length 75 mm. (Valenciennes.)

Perhaps a synonym of Atherina pinguis.



Body moderately deep. Head somewhat long, <sup>wider.</sup> snout short, rounded. Eye large, advanced. Mouth moderate, rami of mandible not elevated inside mouth. Premaxillary spine short, blunt. Teeth in villiform bands in pairs. Scales moderate, smooth or slightly crenate. Vertical fin more or less scaly. First dorsal usually postmedian, second dorsal origin little behind anal origin. Caudal forked. Pectoral moderate, high. Ventral smaller, below posterior part of depressed pectoral. Vent before ventral tips.

Closely related to Lithina, differing chiefly in the low mandibles, which not abruptly elevated inside mouth.



Atherina hepsetoides Richardson

Atherina hepsetoides Richardson,  
Ann. Mag. Nat. Hist., vol. 11, p. 178,  
March 1843 (type locality, Port  
Arthur, Tasmania). — Günther,  
Cat. Fish. Brit. Mus., vol. 3, p.  
397, 1860 (copied). — Macleay,  
Proc. Linn. Soc. New South Wales,  
vol. 5, pt. 2, p. 37, 1881 (copied). —  
Jordan and Hubbs, Stanford  
Public., p. 43, 1919 (reference). —  
McCulloch, Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 107, June 29, 1929  
(reference).

Depth 8 in total; head 6. Eye 3 in head,  
little longer than snout; mouth cleft  
oblique; teeth minute. Vertebrae 48.

D. IX - I, 11, spinous dorsal between  
ventral base and vent; A. I, 11; ~~ventral~~  
pectoral 15. (Richardson.)



25 to 48-apical denticles with 3 or 4 transverse series of basal elements, obsolete rugosities in young, circuli fine

D. IX, 15, I or 14, I, third spine  $3\frac{2}{5}$  to  $3\frac{1}{2}$  in total head length, eleventh ray  $2\frac{1}{5}$  to  $2\frac{1}{3}$ ; A. III, 9, I, third spine  $3\frac{1}{4}$  to  $3\frac{2}{5}$ , seventh ray  $2\frac{1}{8}$  to  $2\frac{1}{5}$ ; caudal  $1\frac{2}{3}$  to  $1\frac{3}{4}$ , convex behind; least depth of caudal peduncle  $2\frac{2}{5}$  to  $2\frac{4}{5}$ ; pectoral  $1\frac{1}{2}$  to  $1\frac{3}{5}$ ; ventral  $1\frac{3}{4}$  to  $1\frac{4}{5}$ .

Brown or pale yellowish brown, head often darker than rest of body. Some examples show head and all anterior part of body finely spotted paler, spots all greater in diameter than interspaces. Often chest, prepectoral and abdomen pale spots greatly larger than on head



<sup>Atherina</sup>  
Hepsetia edelensis (Castelnau) <sup>doubtful 2031</sup>

Atherinichthys edelensis Castelnau,  
Proc. Zool. Soc. Victoria, vol. 2,  
p. 134, May 10, 1873 (type locality,  
Fremantle, West Australia).

— Macleay, Proc. Linn. Soc. New  
South Wales, vol. 5, pt. 2, p. 42,  
1881 (copied).

Hepsetia edelensis Jordan and  
Hubbs, Stanford Public., p. 33,  
1919 (reference). — McCulloch,  
Mem. Austral. Mus., vol. 5, pt. 1,  
p. 108, June 29, 1929 (reference).



$3\frac{1}{8}$  in total head length; A. I, 8,  
sixth ray  $2\frac{2}{5}$  to  $2\frac{2}{3}$ ; caudal  $1\frac{1}{6}$  to  
 $1\frac{1}{3}$ , convex behind; least depth of  
caudal peduncle  $2\frac{1}{2}$  to  $2\frac{2}{3}$ ;  
pectoral  $1\frac{2}{3}$  to  $1\frac{3}{4}$ , rays I, 18;  
ventral I, 5, fin  $1\frac{7}{8}$  to 2 in total  
head length.

General color gray brown  
to brownish generally. Along  
side 5 large ~~blackish~~, more or  
less irregular blotches, variable,  
penultimate more or less crescentic  
and last as large rounded one  
on caudal base. Dark streaks  
back from eye to upper edge of  
gill opening. Iris slate, pupil  
greenish. Under surface of head  
and abdomen pale to soiled.  
Whitish due to dusky mottlings  
made up of dark or blackish  
brown dots. Dorsals grayish,  
variegated with black, as



depth  $6 \frac{1}{4}$ ; head  $3 \frac{3}{4}$ . First dorsal inserted at equal space from front part of snout and upper caudal base. Silvery band on each side. Length 65 mm. (Castelnau.)

Said to differ from <sup>Atherina</sup> ~~Hepsetta~~ punguis in the above characters.



One, 160 mm., Kratt; two, 123 &  
147 mm. (caudal fins damaged)  
Ban Thung Luang.

Osteochilus melanopleurus  
(Bleeker).

Scales  $45 + 3$ . D. III, 18, I. All fins  
dusky or dark gray terminally.  
Dorsal dark neutral gray, rays  
red. Anal like dorsal, white  
basally. Caudal dark gray, with  
red tinge medially. Ventral  
white basally, outer half red and  
dark gray terminally.

Two, 118 to 125 mm., Bangkok

Hampala macrolepidota

(Valenciennes).

One, 185 mm., Kratt.

Cyclocheilichthys apogon (Valenciennes)

Depth  $2\frac{1}{2}$ . No barbels. Each scale  
with dark basal spot, forming a  
longitudinal row. Front of dors



# Analysis of Species

2033

- a. Atherina. Ramus of mandible elevated abruptly inside mouth.
- b. Scales 30 to 50 in lateral series.
- c. Anal rays 9 to 14.
- d. Teeth on palate.
- e. Soft D. I, 7 to I, 9; vomer and palatines with teeth.
- f. Vent distinctly before first dorsal, between ventrals or at least between ventral tips.
- g. Each scale on side of body with dark spot; scales 33 to 36 in lateral series; pectoral large, less than 5 in total. endrachtensis.
- g.<sup>2</sup> Scales without dark spots; pectoral small, more than 5 in total.
- h. First dorsal origin opposite third or fourth scale behind vent.
- i. Scales 35 to 40 in lateral series. duodecimalis.
- i.<sup>2</sup> Scales 42 to 45 in lateral series. forshali.
- h.<sup>2</sup> First dorsal origin opposite seventh or eighth scale behind vent; lateral



scales 39 or 40.

valenciennesi.

2034

f.<sup>2</sup> Vent 1 or 2 scales behind depressed ventral tips or opposite first dorsal origin; lateral scales 40 to 44.

lacunosa.

Q.<sup>2</sup> Soft D. I, 10 to I, 12; vomerine teeth present; no palatine teeth; vent mostly between depressed ventrals.

j.<sup>1</sup> Lateral scales 37; maxillary reaches  $\frac{4}{5}$  to eye.

microstoma.

f.<sup>2</sup> Lateral scales 40 to 45.

k.<sup>1</sup> Eye 3 in head.

l.<sup>1</sup> Lateral scales 45. bleekeri.

l.<sup>2</sup> Lateral scales 42. tamarensis.

k.<sup>2</sup> Eye  $2\frac{2}{3}$  to  $2\frac{4}{5}$  in head.

m.<sup>1</sup> Lateral scales 45. presbyteroides.

m.<sup>2</sup> Lateral scales 40. woodwardi.

f.<sup>3</sup> Lateral scales 48 or 49; eye  $2\frac{3}{4}$  in head; vent behind depressed ventrals.

tsurugae.

d.<sup>1</sup> no teeth in palate.

n.<sup>1</sup> A. I, 9 or 10.

mugiloides.

n.<sup>2</sup> A. I, 13.

melanostigma.

n.<sup>2</sup> A. I, 16 to 18.

breviceps.

l.<sup>2</sup> Scales 73 to 75 in lateral series; vent between ventrals.

dannevigi.



2035

a.<sup>2</sup> Hepsetia. Rami of mandible not  
elevated abruptly inside mouth.

o.<sup>1</sup> Pectoral without dark  
blotch..

p.<sup>1</sup> Depth  $4\frac{2}{5}$  to 5. pinguis.

p.<sup>2</sup> Depth  $5\frac{1}{8}$ . afra.

o.<sup>2</sup> Pectoral with black  
subbasal blotch; depth  $5\frac{1}{2}$   
to  $5\frac{3}{5}$ . maculipectoralis..



2036

Atherina endrachtensis Duoy and Gaimard

Atherina endrachtensis Duoy and Gaimard,  
Voy. Uranie, Zool., p. 334, 1825 (type  
locality, China Sea; Terre d'Endracht  
[Shark's Bay, Endracht's Land,  
Western Australia]). — Valenciennes,  
Hist. nat. Poiss., vol. 10, p. 456, 1835  
(New Guinea). — Günther, Cat. Fish.  
Brit. Mus., vol. 3, p. 401, 1861 (copied).

— Macleay, Proc. Linn. Soc. New South  
Wales, vol. 5, pt. 2, p. 39, 1881 (on  
Valenciennes). — Sauvage, Hist. nat.  
Madagascar, Poiss., p. 406, 1891  
(reference). — Jordan and Seale,

Bull. Bur. Fisher., vol. 25, p. 216,  
1905 (reference).



13486. Basa Reef, Gulf of Boni,  
Celebes. December 17, 1909. Length 171 mm.

16231. Cape Kait, Libani Bay, Celebes.  
December 29, 1909. Length 154 mm.

18332 and 18337. West of Malibagu  
Point, Celebes. November 21, 1909.  
Length 175 to 197 mm. [2062.]

13212. Doworra Island. December 2,  
1909. Length 169 mm.

13121. Powati Harbor, Makyan Island.  
November 28, 1909. Length 195 mm.

13507 and 13509. Gomomo Island,  
Pitt Passage. December 3, 1909. Length  
125 to 170 mm.

14866. Dodepo Island, Gulf of Tomini,  
(Celebes). November 16, 1909. Length 85 mm.



— Kendall and Goldsborough, Mem.  
Mus. Comp. Zool., vol. 26, p. 254, 1911  
(Marshall; Troch; Suva; Rangiroa;  
Guam).

~~aus dem~~

~~aus dem~~

~~aus dem~~

Fische,

~~March 14, April 1913~~ Fische,  
— Weber, Siboga Exped., vol. 57, p. 136,  
1913 (Paternoster Island, Sumbawa,  
Menado, Biaru).

— Jordan and Hubbs, Stanford Public,  
p. 41, 1919 (reference).

— Fowler, Mem. Bishop Mus., vol. 10,  
p. 119, 1928 (New Guinea). — McCulloch,  
Mem. Austral. Mus., vol. 5,  
pt. 1, p. 108, June 29, 1929 (reference).

— Fowler, Mem. Bishop Mus., vol. 11,  
no. 5, p. 324, 1931 (reference).



1 example. Taganak Island, off  
southern Luzon. January 7, 1908.  
Length 144 mm. [1080].

14306. Teomabal Island, vicinity  
Golo. September 18, 1909. Length 126 mm.

7124 and 7124. West coast of Palau  
Island. November 18, 1908. Length 152 to  
198 mm.

21334. Braburan Island, off Borneo.  
December 31, 1909. Length 93 mm.

16425 and 16427. Danawan and Vi Amil  
Islands, vicinity Sibuko Bay, Borneo.  
September 27, 1909. Length 157 to 178 mm.

17309. Sipadan Island, vicinity Sibuko  
Bay, Borneo. September 28, 1909. Length  
175 mm.

18252. Tomahu Island, vicinity of  
southern Bouro. December 11, 1909. Length  
90 mm.



Atherina sendrachtsensis Beaufort,  
Bijdr. Dierk. Amsterdam, vol. 19, p.  
106, 1913 (Majabibit Bay, Waigiu).—

— Weber, Zool. Meded. Mus. Leiden,  
vol. 6, p. 47, 1921 ( ).

— Weber and Beaufort, Fishes Indo  
Austral. Archip., vol. 4, p. 270, 1922  
(Tias; Paternoster Islands; Sumbawa;  
Menado; Biaru; Ceram; Banda;  
Aru; Waigiu)..

— Duncker and Mohr, Mitteil. Z. Naturh.  
Mus. Hamburg, vol. 42, p. 135, 1926  
(Seeadler Harbor, Admiralty Islands).

— Whitley, Journ. Pan Pac. Res.  
Inst., vol. 2, no. 1, p. 4, January-  
March 1927 (Fiji).



white lines touching one another on hind caudal edge. Paired fins pale brown or yellowish, usually with narrow dark edges to ventrals.

Zanzibar, Mauritius, Seychelles, India, East Indies, Philippines, Riu Kiu, Melanesia, Micronesia, Polynesia. Boulenger gives the length 240 mm. though none of our specimens so large. Also all have the white oblique bands on the caudal, a character by which the species may be easily recognized.

16363. Balicuatro Islands, Biri Channel, east coast Luzon. June 1, 1909. Length 123 mm.



Atherina bimanensis Bleeker, Journ.  
Ind. Arch., vol. 2, p. (633) 637, 1848

(type locality, Bima, Sumbawa).

— Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 392, 1860 (reference). —

Jordan and Hubbs, Stanford Public,  
p. 41, 1919 (reference).



circuli moderate.

D. IX, 14, I or 15, I, fourth spine  $2\frac{4}{5}$  to 4 in total head length, twelfth ray  $2\frac{1}{3}$  to  $2\frac{3}{5}$ ; A. III, 9, I, second spine  $2\frac{2}{3}$  to  $3\frac{1}{8}$ , fifth ray 2 to  $2\frac{1}{3}$ ; caudal  $1\frac{3}{5}$  to  $1\frac{4}{5}$ , convexly rounded behind; least depth of caudal peduncle  $2\frac{3}{4}$  to  $3\frac{1}{4}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{1}{2}$ ; ventral  $1\frac{4}{5}$  to  $2\frac{1}{5}$ .

In alcohol dark brown above, little paler below or on breast and belly. Iris brown. Dorsals dark brown, mottled with deep gray on soft fin. Anal similar. Caudal largely or over median area dark brown mottled with dark gray, oblique whitish line over upper and lower rays and along upper and lower edges, leaving intermediate brown region paler, none of



Hepsetia regina (Seale)

2040

Atherina regina Seale, Philippine  
Journ. Sci., vol. 4, no. 6, p. 496,  
pl. 3, fig. 1, November 1909 (type  
locality, Culion; Busuanga).

Hepsetia regina Jordan and Hubbs,  
Stanford Public., p. 34, 1919  
(reference).



and body to caudal base, rays 10;  
ventral rays 1, 2, long simple ray,  
extends well beyond caudal fin,  
bifurcate terminally about  $\frac{1}{3}$  its  
length with branches equal, also  
ray and bifurcations distinctly  
articulated.

Color pale brownish with  
golden sheen, latter color most  
brilliant along lower sides of  
head, trunk and tail, especially  
about and on long anal fin &  
base. Iris pale or whitish.  
Light olive tinge over golden of  
upper surface of head. Fins all  
more or less pale to whitish,  
on caudal some very faint median  
transverse and rather close set  
series of small spots, several on  
each ray. Scales on upper surface  
of back each more or less tinted  
with dull oliveaceous.



2041

Depth  $4\frac{2}{5}$  to 5; head  $3\frac{1}{3}$  to  $3\frac{2}{5}$ ,  
width  $1\frac{1}{2}$  to  $1\frac{2}{3}$ . Snout 4 to  $4\frac{1}{3}$   
in head from snout tip; eye  $2\frac{1}{4}$   
to  $2\frac{2}{5}$ , greatly exceeds snout,  
greater than interorbital;  
maxillary reaches  $\frac{1}{5}$  to  $\frac{1}{4}$  in eye,  
length  $2\frac{2}{5}$  to  $2\frac{7}{8}$  in head from  
snout tip; interorbital  $2\frac{1}{2}$  to  
 $2\frac{3}{4}$  in head from snout tip,  
low, depressed to little concave  
forward. Gill rakers 6 + 19, slender,  
lanceolate, little longer than gill  
filaments or  $2\frac{3}{4}$  in eye.

Scales 33 to 36 in lateral  
series to caudal base and 3 to 5  
more small ones on latter; 6 or  
7 transversely, 15 to 17 predorsal  
forward to middle of interorbital.  
Scales with 2 basal marginal points;  
50 to 60 vertical parallel striae  
basally; apical half of scale entire.



$\text{D. } \underline{\text{IV or V}} - \underline{\text{I}}, \underline{\text{I}}, \underline{6}, \underline{\text{I}} \text{ or } \underline{\text{I}}, \underline{\text{I}}, \underline{7}, \underline{\text{I}},$   
 second spine  $2 \frac{3}{4}$  to  $2 \frac{4}{5}$  in total  
 head length, first branched ray  
 $1 \frac{7}{8}$  to 2; A.  $\underline{\text{I}}, \underline{\text{I}}, \underline{9}, \underline{\text{I}} \text{ or } \underline{\text{I}}, \underline{\text{I}}, \underline{10}, \underline{\text{I}},$   
 first branched ray  $1 \frac{2}{3}$  to  $1 \frac{3}{4}$ ;  
 caudal  $1 \frac{1}{8}$  to  $1 \frac{1}{5}$ , deeply  
 emarginate, lobes pointed;  
 least depth of caudal peduncle  
 $3 \frac{1}{4}$  to  $3 \frac{4}{5}$ ; pectoral  $1 \frac{1}{8}$  to  $1 \frac{1}{5}$ ,  
 rays  $\underline{\text{I}}, 14$ ; ventral rays  $\underline{\text{I}}, 5$ ,  
 fin  $1 \frac{3}{5}$  to  $1 \frac{3}{4}$ .

Back and upper surface  
 of head brownish. Dark median  
 streak down back, continued  
 between and behind fins.  
 Along side of body 4 parallel  
 longitudinal rows of blackish  
 spots, one at base of each  
 scale exposure. An underlaid  
 silvery white band along



2043

uppermost row of blackish spots, it axial, rather ill defined and with obscure leaden edge above. Iris silvery white. Dorsals and caudal grayish. Other fins whitish, dusky or grayish at pectoral base, often upper part of pectoral more or less suffused with dusky gray.



2044  
A strongly marked species  
with the blackish spots as  
longitudinal rows. In most  
all other respects it resembles  
Atherina duodecimalis.



One example. Balamban, Cebu. <sup>2045</sup>  
April 2, 1908. Length 48 mm.

One example. Bolalo Bay,  
Palawan. December 31, 1908. Length  
50 mm.

Two example. Bolinao Bay, Luzon.  
May 9, 1909. Length 45 to 71 mm.

Six examples. Bongao anchorage.  
February 22, 1908. Length 35 to 74  
mm.

33 examples. Busin Harbor,  
Burias Island. April 23, 1908.  
Length 43 to 100 mm.

Two examples. Cabugao anchorage.  
June 9, 1909. Length 48 to 53 mm.

9855. Cagayan de Jolo. January 8,  
1909. Length 86 mm.

One example. Camp Overton,  
Mindanao. August 15, 1909. Length  
47 mm.

15083. Capulaan Bay, Pagbilao  
Island. February 24, 1909. Length  
35 mm.



Thirteen examples. Cavite,  
Luzon. June 11, 1908. Length 48 to  
50 mm.

1822, 21769 to 21771. Cebu.  
March 20, 1909. Length 90 to 120 mm.

14 examples. Endeavour Strait,  
Palawan. December 23, 1909.  
Length 25 to 65 mm.

20441. Grande Island reef.  
January 8, 1908. Length 52 mm.

20524, 20525. Gujilugan,  
Negros. April 2, 1908. Length 75  
to 78 mm.

7029. Limbones Cove, Luzon.  
January 14, 1908. Length 48 mm.

One example. ~~Lingayen Gulf~~  
~~Lingayen Gulf~~ Lingayen Gulf, Luzon.  
May 11, 1909. Length 30, 1909.

One example. Alangapo, southern  
Luzon. January 7, 1908. Length  
46 mm.



2047

Two examples. Panabutan Bay,  
Mindanao. February 5, 1908.  
Length 44 to 51 mm.

Nineteen examples. Papatag Island,  
Tawi Tawi. February 23, 1908. Length  
44 to 107 mm.

Three examples. Port Bais, Negros.  
March 31, 1908. Length 54 to 79 mm.

Three examples. Port Calton,  
Busuanga Island. December 15, 1908.  
Length 42 to 59 mm.

Seven examples. Port Calton.  
December 16, 1908. Length 39 to 49 mm.

Three examples. Port Dupon,  
Leyte. May 6, 1908. Length 53 to 69 mm.

Fifteen examples. Port Galera,  
Mindoro. June 8, 1908. Length 35 to  
44 mm.

8442, 8443. Port Janelo, Luzon.  
July 12, 1908. Length 45 to 72 mm.  
Seven examples.



8441, 8444. Port Jamelo.

July 13, 1908. Length 40 to 85 mm.

Fifty examples.

Nine examples. Port Matalvi,  
Luzon. November 23, 1908. Length  
38 to 50 mm.

One example. Port San Vicente,  
Luzon shore. November 13, 1908.  
Length 53 mm.

<sup>105</sup>  
~~One~~ example. Port San Vicente.  
November 18, 1908. Length ~~40 to 50 mm.~~  
35 to 77 mm.

Twelve examples. Ragay Bay,  
Ragay Gulf, Luzon. March 9, 1909.  
Length 39 to 60 mm.

Four examples. Ragay Bay.  
March 10, 1909. Length 41 to 52 mm.

8548, 8551. San Fernando, Union  
Province, Luzon. March 17, 1908.  
Length 57 to 70 mm.

16 examples. San Miguel Harbor,  
Ticao Island. April 21, 1908.  
Length 40 to 94 mm.



23 examples. Santa Cruz Island, Marinduque. April 24, 1908. Length 40 to 84 mm.

18 examples. San Vicente Harbor, Luzon shore. November 13, 1908. Length 32 to 53 mm.

19429. Sorogon market, March 12, 1909. Length 63 mm.

5461, 8325, ~~8325~~ 8329. Subig Bay, Luzon. January 7, 1908. Length 49 to 54 mm.

7049. Taal Lake, east side of island. December 27, 1907. Length 61 mm.

Eight examples. Tacloban anchorage. April 12, 1908. Length 49 to 54 mm. Female with bunch of about 100 eggs attached.

19732. Tacloban market. July 25, 1909. Length 74 mm.

143 examples. Tara Island. December 15, 1908. Length 37 to 72 mm.



2050

Thirteen examples. Ulugan Bay  
near mouth of Baheli River,  
Palawan. December 28, 1908.  
Length 35 to 62 mm.

15441. Ulugan Bay, Rita  
Island, Palawan. December 29,  
1908. Length 58 mm.

Ten examples. Varadero Harbor,  
Mindoro. July 22, 1908. Length  
25 to 50 mm.

19988. Sandakan Bay, Borneo.  
March 2, 1908. Length 83 mm.

One example. Sandakan Bay.  
March 1, 1908. Length 74 mm.



2057

Atherina duodecimalis Valenciennes

Atherina duodecimalis Valenciennes,  
Hist. Nat. Poiss., vol. 10, p. 458, 1835  
(type locality, Ceylon). — Bleeker,  
Nat. Tijds. Ned. Indië, vol. 2, p. (472)  
485, 1851 (Rio); vol. 3, p. 445, 1852  
(Banka); vol. 4, p. 596, 1853  
(Halmaheira); Verh. Batavia. Genoot.  
(hal. Ich. Bengal), vol. 25, p. 48, 1853  
(reference); Nat. Tijds. Ned. Indië,  
vol. 6, p. 90, 1854 (Banda, heira), p.  
458 (Amboina); vol. 7, p. 164, 1854  
(Kutoena), p. 361 (Batjan); vol. 8, p.  
296, 1855 (Ternate); vol. 9, p. 114, 1855  
(Sumbawa); vol. 10, p. 347, 1856  
(Rio, Bintang), p. 360 (Ternate), p.



narrow band of fine teeth on ventral and each palatine; interorbital 6 to  $8\frac{1}{2}$ , nearly level; hind preopercle edge minutely serrated, obsolete or entire with age; upper opercle spine in advance, median closer to lower.

Gill rakers 6 + 14, obtusely lanceolate, slightly less than gill filaments or  $2\frac{1}{4}$  in eye; 5 upper or lower on each branch rudimentary.

Scales 70 to 77 + 11 to 15 in lateral line, 13 to 16 above, 25 to 27 below; pores 43 to 49 + 3 or 4; predorsal 47 to 90 scales; 24 to 26 rows across cheek; maxillary naked in young, with age terminal patch of fine scales  $\frac{1}{4}$  maxillary expansion; fins



p. 469 (Suparoea); vol. 11, p. 419, 1856  
 (Muntok, Banka); vol. 12, p. 193,  
 1856 (Ternate); Act. Soc. Sci. Ind.  
 Néerl., vol. 1, no. 3, p. 5, 1856 (Manado);  
 vol. 1, no. 5, p. 6, 1856 (Amboina);  
 vol. 2, no. 7, p. 5, 1857 (Amboina);  
 Nat. Tijds. Ned. Indië, vol. 13, p.  
 284, 1857 (Tjirutjup, Biliton), p.  
 384 (Batjan), p. 388 (Timor koepang);  
 vol. 15, p. 201, 1858 (Goram), p. 242  
 (Singapore); vol. 17, p. 143, 1858-59  
 (Boeleling, Bali); vol. 18, p. 354, 1859  
 (Bawean), p. 361 (Blinjie, Banka);  
 Act. Soc. Sci. Ind. Néerl., vol. 6, no. 2,  
 p. 4, 1859 (Doreh, New Guinea); Nat.  
 Tijds. Ned. Indië, vol. 20, p. <sup>141</sup>138, <sup>59</sup>1866  
 60 (Badjoa, Boni), p. 206 (Boeleling);



Depth  $2\frac{2}{3}$  to  $2\frac{3}{4}$ ; head  $2\frac{2}{5}$  to  $2\frac{4}{5}$ ,  
width  $2\frac{1}{2}$  to  $2\frac{7}{8}$ . Snout  $4\frac{1}{4}$  to  $4\frac{7}{8}$   
in head from snout tip; eye  $4\frac{1}{4}$  to  $5\frac{1}{2}$ ,  
greater than snout in young to  $1\frac{2}{3}$   
with age, greater than interorbital  
in young to equal with age; maxillary  
extends beyond eye, at least half an  
eye diameter with age, expansion  $1\frac{1}{5}$  to  
 $1\frac{1}{3}$  in eye, length 2 to  $2\frac{1}{10}$  in head  
from snout tip; teeth in bands in  
jaws, slightly enlarged outer erect  
upper row; some long inner front  
upper depressible teeth; lower laterals  
in 4 rows narrowing to 2 rows  
posteriorly and entire inner row long  
and depressible; pair of small canines  
in front of each jaw, often duplicated;



vol. 21, p. 138, 1860 (Muntok, Banka);  
 vol. 22, p. 65, 1860 (Benculen), p. 108  
 (Muntok), p. 249 (Timor); Act. Soc.  
 Sci. Ind. Néerl., vol. 8 (Sumatra 9),  
 p. 2, 1860 (Benculen). — Günther,  
 Cat. Fish. Brit. Mus., vol. 3, p.  
 400, 1861 (copied). — <sup>Red. Tyds. Dierk., vol. 1, p. 254, 1863 (Wohai)</sup> Bleeker, Verslag.  
 Akad. Wet. Amsterdam, vol. 16, p.  
 361, 1864 (Saparoua); ser. 2, vol. 2,  
 p. 293, 1868 (Rio). — Day, Fishes of  
 India, pt. 2, p. 345, 1876; Fauna  
 British India, Fishes, vol. 2, p. 339,  
 1889.

— Sauvage, Hist. Nat. Madagascar,  
 Poiss., p. 406, 1891 (reference). —

? Bean and Weed, Proc. U. S. Nat. Mus.,  
 vol. 42, p. 596, 1912 (Batavia).



Epinephelus zamana Bleeker, Atlas  
Ichth. Ind. Néerl., vol. 7, 1873-76,  
pl. (10) 288, fig. 2.

Serranus spilurus Valenciennes, Hist.  
Nat. Poiss., vol. 9, 1833, p. 433. Mauritius.  
Serranus homgrayi Day, Proc. Zool.  
Soc. London, 1870, p. 678. Port Blair,  
Andaman Islands.



— Beaufort, Bijdr. Dierk. Amsterdam,  
pt. 19, p. 105, 1913 (Magalibit Bay,  
Waigiu). — Weber, Siboga Exped.,  
vol. 57, Fische, p. 136, 1913 (Lombok;  
Aru); zool. med. mus. Leiden, vol. 6,  
p. 47, 1921.

— Weber and Beaufort, Fish. Indo  
Austral. Archip., vol. 4, p. 275, 1922  
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Buton; south Timor; Ambon; Ceram;  
Waigiu; Aru). — Deuncker and Mohr,  
Mitteil. Naturh. Mus. Hamburg,  
vol. 42, p. 135, 1926 (Papitalai,  
Admiralty Islands; Linden Harbor,  
New Pommernia).



Sauvage, Hist. Nat. Madagascar, Poiss.,  
1891, p. 57, pl. 10, fig. 1. — Boulenger,  
Cat. Fishes Brit. Mus., vol. 1, 1895, p. 195  
(Amboina, Louisiades, Tahiti). —

Steindachner, Abhandl. Senckenberg.  
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(Batjan). — Weber, Siboga Exped., vol.  
57, <sup>Fishes</sup> 25, 1913, p. 201 (Banda Island, Feer,  
Hoch Kei).

Cephalopholis leopardus Jordan and  
Richardson, Bull. Bur. Fisher., vol. 27,  
1907 (1908), p. 256 (Calayan).

Serranus zanana Valenciennes, Hist.  
Nat. Poiss., vol. 2, 1828, p. 339. No locality,  
"rapportée par Commerson". — Günther,  
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 123  
(Amboyna). — Meyer, Ann. Soc. Españ.  
Hist. Nat. Madrid, vol. 14, 1885, p. 9  
(North Celebes).



— Fowler, Proc. Acad. Nat. Sci.  
 Philadelphia, <sup>vol. 79,</sup> 1927, p. 263 (Santa  
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 vol. 71, art. 10, p. 4, 1927 (Bengkelen,  
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 Journ. Bombay Nat. Hist. Soc., vol. 32,  
 no. 4, p. 706, pl. 2, May 31, 1928  
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Atherina duodecimnales Bleeker, Act.  
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Evermann and Seale, Bull. Bur.  
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Labrus leopardus Lacépède, Hist. Nat. Poiss., vol. 3, 1802, pp. 450, 518, pl. 30, fig. 1.

Great Equatorial Ocean [Indo Pacific].

Serranus leopardus Valenciennes, Hist.

Nat. Poiss., vol. 2, 1827, p. 336 (on Lacépède).

— Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 123 (copied); Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 4, pl. 3, fig. B (East Africa, Seychelles, Samoa, East Indies, Society Islands). — Day, Fishes of India, pt. 1, 1875, p. 25, pl. 6, fig. 4; Fauna Brit. India, vol. 1, 1889, p. 457. — Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 435 (Mauritius).

Plectropoma leoparda Richardson, Ichth.

China Jap., 1846, p. 230 (copied).

Epinephelus leopardus Bleeker, Atlas

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pl. (10) 288, fig. 2 (Sumatra, Sangir,

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~~Hepsetia lineata Günther~~

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Mag. Nat. Hist., ser. 4, vol. 10, p.  
398, 1872 (type locality, Cebu;  
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Hepsetia lineata Jordan and Hubbs,  
Stanford Public., p. 34, 1919  
(reference).



on top of head, predorsal region,  
~~and~~ breast and belly. Lateral line  
complete, arched to Tail, then  
midway along side to caudal.

Dorsal spines graduated to fifth  
which longest, little lower than  
long soft fin. Anal with 2 spines,  
second moderate. Caudal cuneate.

Paired fins moderate. Type Johnius  
melanobrachium, new species.  
Distinguished chiefly by the finely  
spiculated scales on top of head  
and predorsal and belly.

(Asper rough + Corvina.)

Johnius melanobrachium, new  
species. Figure 122.

Depth  $3\frac{2}{5}$ ; head  $3\frac{2}{5}$ , width  
 $\frac{4}{5}$ . Snout  $4\frac{1}{3}$  in head; eye  $5\frac{3}{4}$ ,  
 $\frac{1}{2}$  in snout, 2 in interorbital;  
maxillary reaches half way in eye,  
length from snout tip  $2\frac{1}{2}$  in head;  
teeth in villiform bands in jaws,  
upper outer row enlarged, lower



2062

50 examples. Atulayan Bay,  
Luzon. June 17, 1909. Length 39 to  
64 mm.

One example. Baganga River,  
Mindanao. May 13, 1908. Length  
35 mm.

20260, 20261. Baganga Bay.  
May 15, 1908. Length 107 to 113 mm.

Three examples. Balamban, Cebu.  
April 2, 1908. Length 30 to 35 mm.

Two examples. Bisueay Island,  
near Cuyo. April 9, 1909. Length  
33 to 74 mm.

26 examples. Bolinao Bay, Luzon.  
May 10, 1909. Length 28 to 64 mm.

One example. Bongao anchorage,  
Sulu Archipelago. February 22, 1908.  
Length 20 mm.

44 examples. Busin Harbor,  
Burias Islands. April 22, 1908.  
Length 35 to 93 mm.



One example. Busin Harbor. <sup>2063</sup>

March 8, 1909. Length 33 mm.

<sup>Three</sup>  
~~One~~ examples. Cebu Bay,  
Catanduanes Island, east coast  
Luzon. June 9, 1909. Length 25<sup>to 48</sup> mm.

9844. Cagayan de Zolo. January  
8, 1909. Length 25 to 67 mm.  
Eighteen examples.

Five examples. Caldera Bay,  
February 16, 1908. Length 18 to 22 mm.  
Very poorly preserved.

Eight examples. Camp Overton,  
Mindanao. August 15, 1909. Length  
21 to 25 mm.

Thirteen examples. Capunuypugan,  
Mindanao. May 9, 1909. Length 31 to  
75 mm.

Eight examples. Catangan Bay,  
Masbate. April 18, 1908. Length 25  
to 49 mm.

One example. Cavite Market, Luzon.  
June 26, 1908. Length 50 mm.



24 examples. Cebu. March 13, 1909.  
Length 20 to 78 mm. With spawn.

21821. Cebu. March 20, 1909.  
Length 79 mm.

[1827.] Cebu. August 28, 1909.  
Six examples. Length 72 to 100 mm.  
One example. Chase Head, beach  
at village near by, Endeavour Strait,  
Palawan. December 22, 1908. Length  
33 mm. Very poorly preserved.

Eleven examples. Cuyo Island.  
April 9, 1909. Length 20 to 52 mm.

↑ 6528. Oat Point, Camino Pass, Luzon.  
June 15, 1909. Length 75 mm.

Length 21 to 70 mm.

38 examples. East side Tagbalaran  
Strait, Bohol Island. April 9, 1908.  
Length 25 to 90 mm. Scales  $37 + 3$ .  
Pectoral  $5\frac{2}{3}$  in total.

Three examples. Endeavour Strait,  
Malampaya Sound, Palawan. December  
23, 1908. Length 18 to 30 mm.



24 examples. Cebu. March 13, 1909.  
Length 20 to 78 mm. With spawn.

21821. Cebu. March 20, 1909.  
Length 79 mm.

[1827.] Cebu. August 28, 1909.  
Six examples. Length 72 to 100 mm.  
One example. Chase Head, beach  
at village near by, Endeavour Strait,  
Palawan. December 22, 1908. Length  
33 mm. Very poorly preserved.

Eleven examples. Cuyo Island.  
April 9, 1909. Length 20 to 52 mm.

50 examples. Dos Amigos Port,  
(Blockwi Tawi. February 18, 1908.  
Length 21 to 78 mm.

38 examples. East side Tagbalaran  
Strait, Bohol Island. April 9, 1908.  
Length 25 to 90 mm. Scales 37 + 3.  
Pectoral  $5\frac{2}{3}$  in total.

Three examples. Endeavour Strait,  
Malampaya Sound, Palawan. December  
23, 1908. Length 18 to 30 mm.



Plectropomus maculatus (Bloch)

collected  
April 9, 1950  
examined  
Jawi.  
length 21 ft



39 examples. Gujuluhan Island,  
Negros. April 2, 1908. Length 31 to  
88 mm.

One example. Iloilo River, shore above  
Iloilo, Panay. June 2, 1908. Length 45  
mm.

Two examples. Inamucan Bay,  
Mindanao. June 12, 1909. Length 63 to  
74 mm.

One example. Inamucan Bay.  
August 9, 1909. Length 33 mm.

20092. Iwahig and tributaries,  
Puerta Princesa, Palawan. April 4,  
1909. Length 83 mm.

Four examples. Jolo. February 7, 1908.  
Length 63 to 91 mm.

Seven examples. Jolo. February 8, 1908.  
Length 40 to 48 mm.

Two examples. Jolo anchorage, Jolo.  
March 5, 1908. Length 44 to 55 mm.

Three examples. Ligo Point,  
Balayan Bay, Verde Island Passage.  
January 18, 1908. Length 17 to 31 mm. Very  
poorly preserved.



One example. Lucena anchorage,  
Tayabas Light, Marinduque.  
February 24, 1909. Length 36 mm.

Ten examples. Maculabo  
Island. June 13, 1909. Length 30  
to 70 mm.

One example. Malabang anchorage,  
southern Mindanao. May 24, 1908.  
Length 41 mm.

40 examples. Malcochin Harbor,  
Linapacan Island. December 19, 1908.  
Length 28 to 75 mm.

Seven examples. Manila Bay,  
Luzon. December 7, 1907. Length 38 to  
68 mm.

Five examples. Manila Bay.  
December 9, 1907. Length 51 to 58 mm.

Eight examples. Manila Bay.  
December 15, 1907. Length 52 to 63 mm.

Seven examples. Manila Harbor.  
March 16, 1908. Length 62 to 74 mm.



Eleven  
~~Twelve~~ examples. Mansalay,  
Mindoro. June 3, 1908. Length 27 to  
65 mm.

One example. Mansalay. June  
4, 1908. Length 42 mm.

174 examples. Mantaguin Bay,  
Palawan. April 1, 1909. Length  
25 to 68 mm.

One example. Maribojoc Bay,  
Maribojoc, Bohol. May 26, 1909.  
Length 33 mm.

Three examples. Masamat Bay,  
Dinalasag Island, east coast Luzon.  
June 11, 1909. Length 54 to 77 mm.

Two examples. Mati, Pujada  
Bay, Mindanao. May 15, 1908.  
Length 37 to 46 mm.

131 examples. Matnog Bay,  
Luzon. May 31, 1909. Length 30 to 57 mm.

21224, Mindanao River below  
mouth, Cotabato, Mindanao. May 20,  
1908. Length 75 mm.



2068

Four examples. Habatas Point,  
Samar. July 24, 1909. Length 59 to  
65 mm.

26 examples. Nasugbu Bay, Luzon.  
January 1908. Length 13 to 15 mm.  
Poorly preserved.

One example. Rato anchorage,  
Laguna Gulf, Luzon. June 18, 1909.  
Length 28 mm.

One example. Manuan River,  
Camp Overton, Mindanao. August 6,  
1909. Length 42 mm.

Nineteen examples. Panabutan  
Bay, Mindanao. February 5, 1908.  
Length 36 to 88 mm.

One example. Panabutan Bay.  
February 8, 1908. Length 41 mm.

Ten examples. Pandanon Island.  
March 4, 1909. Length 21 to 41 mm.

Three examples. Pandanon Island.  
March 23, 1909. Length 41 to 56 mm.



One example. Pandanon Island.  
March 24, 1909. Length 38 mm.

76 examples. Parang, Mindanao.  
May 23, 1908. Length 49 to 75 mm.  
Scales 36 + 4. Pectoral  $5\frac{1}{2}$  in  
total length. Three horizontal  
rows of dark dots, upper most  
on lateral line and largest, lowest  
row shortest.

24 examples. Paracao, Ragay Gulf,  
Luzon. May 8, 1909. Length 30 to 31  
mm.

Sixteen examples. Port Bais  
anchorage, Tanon Strait, Negros.  
March 31, 1908. Length 59 to 80 mm.

121 examples. Port Calton,  
Busuanga Island. December 15, 1908.  
Length 39 to 93 mm.

125 examples. Port Dupon, Leyte.  
May 6, 1908. Length 18 to 26 mm.

26 examples. Port Dupon. March  
17, 1909. Length 24 to 48 mm.



92 examples. Port Galera, Mindoro.  
 June 9, 1908. Length 38 to 67 mm.  
 Scales  $34 + 3$ . Pectoral 5 in total.

8445. Port Jamelo, Luzon.  
 July 13, 1908. Length 32 to 95 mm  
 158 examples.

Seventeen examples. Port Langcan,  
 Dumaran Island, vicinity of  
 eastern Palawan. April 7, 1909.  
 Length 25 to 75 mm.

70 examples. Port Matalvi,  
 Luzon. November 22, 1908. Length  
~~13~~ to 75 mm.

Seven examples. Port San Pio  
 Duinto, Camiguin Island. November  
 11, 1908. Length 45 to 65 mm.

Sixteen examples. Port San Vicente,  
 northern Luzon. November 18, 1908.  
 Length 35 to 110 mm.

31 examples. Port Usan, west of  
 Pinas Island. December 17, 1908.  
 Length 32 to 68 mm. Scales  $36 + 3$ .  
 Pectoral  $6\frac{1}{3}$  in total length.



2071

Four examples. Putoc River,  
back water ponds, Mindanao.

January 30, 1909. Length 71 to 92 mm.

57 examples. Ragay Bay,  
Ragay Gulf, Luzon. March 10, 1909.  
Length 18 to 85 mm.

One example. Romblon. March  
25, 1908. Length 28 mm.

Twenty examples. Romblon.  
March 26, 1908. Length 32 to 75 mm.

Three examples. Sablayan Bay,  
Mindoro. December 12, 1908. Length  
22 to 51 mm.

8549, 8550, 8552. San Fernando,  
Union Province, Luzon. March 17, 1908.  
Length 55 to 78 mm. Four examples.

Seventeen examples. San Miguel,  
Ticao Island. April 2, 1908.

Length 34 to 77 mm.

Two examples. San Miguel.  
April 21, 1908. Length 23 to 40 mm.



2072

Two examples. San Roque, Cavite,  
Luzon. July 28, 1908. Length 53 to  
56 mm.

One example. Santa Maria,  
Siquijor Island. August 11, 1909.  
Length 47 mm.

35 examples. Sorsogon Bay  
entrance. March 11, 1909. Length  
60 to 80 mm.

23 examples. Subig Bay, Luzon.  
January 7, 1908. Length 38 to 61 mm.

47 examples. Surigao, Olingapo  
Bay, Mindanao. January 7, 1908.  
Length 30 to 78 mm.

One example. Surigao. May 8,  
1908. Length 47 mm.

Four examples. Taal anchorage.  
February 20, 1909. Length 35 to 39 mm.

Eighteen examples. Taal Lake,  
east end of island. December 26,  
1907. Length 52 to 64 mm.



D. 5562. Tãnum Point (Jolo),  
N. 87° E., 17.2 miles (lat. 5° 54' 20"  
N., long. 121° 13' 12" E.), Jolo Island  
and vicinity. ~~November 4, 1908.~~

~~Length 20 mm.~~ September 20, 1909.

Length 21 to 38 mm. Three examples.

Four examples. Tãra Island  
anchorage. December 14, 1908.

Length 30 to 74 mm.

41 examples. Tataan, Simaluc  
Island. February 19, 1908. Length  
65 to 78 mm. Scales 36 + 4. Pectoral  
6½ in total fish.

Two examples. Tataan Anchorage.  
February 21, 1908. Length 65 to 69 mm.  
Scales 37. Pectoral 5½, without  
dark spot.

37 examples. Tataan Passage.

February 20, 1908. Length 19 to 74 mm.

10 examples. Tilig, Lubang Island.

July 14, 1908. Length 20 to 21 mm. In  
poor condition.



Four examples. Tomahu Island.  
December 11, 1909. Length 35 to 78  
mm.

~~One~~<sup>Seven</sup> examples. Tumindao Island  
anchorage. February 25, 1908.  
Length <sup>19 to</sup> 73 mm.

One example. Tumindao Island  
anchorage. February 26, 1908.  
Length 29 mm.

37 examples. Varadero Harbor,  
Mindoro. July 22, 1908. Length 18 to  
45 mm.

Eleven examples. Varadero Harbor.  
July 12, 1908. Length 17 to 20 mm.

39 examples. Varadero Bay.  
July 23, 1908. Length 33 to 88 mm.

One example. Varadero Bay.  
July 25, 1908. Length 35 mm.



One example. D. 5312. China Sea,  
vicinity Hong Kong (lat.  $21^{\circ}30'N.$ ,  
long.  $116^{\circ}32'E.$ ). November 4,  
1908. Length 20 mm.

Nine examples. Gomomo Island,  
Pitt Passage. December 3, 1909.  
Length 54 to 78 mm.

<sup>20224</sup>  
20223, Sandakan Bay, Borneo.  
March 2, 1908. Length ~~68~~<sup>53</sup> to 83 mm.  
Three examples.



2076  
A. n. S. P., one example. ~~Asia~~ Ceylon.  
Prof. F. Hallberg. Length 70 mm.



Apogon kiusianus (Döderlein)  
Steindachner and Döderlein, Denkschr.

Akad. Wiss. Wien, vol. 47, 1883, p. 2.

Kagoshima.

Apogon spilargus Regan, Journ. Bombay  
Nat. Hist. Soc., vol. 16, no. 2, 1905, p.

321, pl. 3 (c), fig. 5. Karachi.

Amia jenkinsi Evermann and Seale,  
Bull. Bur. Fisher., vol. 26, 1906 (1907),

p. 73, fig. 9. Buluan.

Amia jenkinsi Fowler, Copeia, no. 58,  
June 18, 1918, p. 63 (Philippines).



2057

Atherina forskalii (not Rüppell)  
Evermann and Seale, Bull. Bur.  
Fisher, vol. 26, p. 59, 1906 (1907)  
(Bulan; Bacon).

Atherina lacunosa (not Schneider)  
Jordan and Richardson, Bull.  
Bur. Fisher, vol. 27, p. 243, 1907  
(Iloilo).

Atherina balabacensis Seale,  
Philippine Journ. Sci., vol. 4, no. 6,  
p. 498, pl. 3, fig. 2, November 1909  
(type locality, Balabac; Samar;  
Cebu; Siquijor; Cagayan,  
Mindanao Island; Puerto  
Princesa; Culion; Soinal).



<sup>l.c.</sup> Subgenus Johnius <sup>spt. no. 1, capo</sup> Bloch <sup>l.c.</sup>

Johnius belengeri (Cuvier)

One, 150 mm., Bangkok.

Johnius siamensis Hora

One, 78 mm., Bangkok. Maxillary  
little shorter than shown in Hora's  
figure.

<sup>spt. and capo</sup> Aspericorvina, new subgenus.

Body elongately ovoid, well  
compressed. Head moderate, compressed.  
Snout obtuse. Eye small, center  
before first third in head. Mouth  
inferior. Maxillary reaches below  
eye. Large pore each side of  
mandibular symphysis. Teeth  
in villiform bands in jaws, some  
of upper little enlarged. Preopercle,  
subopercle and interopercle with  
denticulate edges. Interorbital  
broad. Gill rakers small, few.



Depth  $5\frac{2}{5}$ ; head  $3\frac{3}{4}$ , width  $1\frac{3}{4}$ .

Snout  $3\frac{4}{5}$  in head from snout tip; eye  $2\frac{1}{2}$ , greater than snout or interorbital; maxillary reaches  $\frac{1}{5}$  in eye, length  $2\frac{2}{3}$  in head; teeth small, conic, in bands in jaws, on vomer and palatines; mandibular rami moderately elevated inside mouth; interorbital broadly concave, length  $2\frac{1}{2}$  in head. Gill rakers  $5 + 21$ , lanceolate, slender,  $2\frac{2}{3}$  in eye. ~~Scales 38 from~~

Scales 38 from above gill opening to 2 caudal base and 4 more on latter; 7 transversely, 16 predorsal, single row on cheek. Large scale below pectoral base nearly large as eye. Scales with



to whitish, front margin of spinous  
dorsal and base of soft dorsal with  
blackish band.

Kurachi, Philippines, Japan.



3 basal marginal points; ~~and~~ 30  
basal ~~basal~~, vertical, parallel  
striae; apical region smooth,  
with 18 small, inconspicuous,  
marginal lobes.

D. V — I, 10, I, second spine  
 $2\frac{1}{3}$  in total head length, first  
branched ray  $1\frac{3}{5}$ , spine of soft  
fin short or  $\frac{1}{3}$  of first ray;  
A. I, 12, first branched ray  
 $1\frac{3}{5}$ , spine  $\frac{1}{4}$  its length; caudal  
equals head, well forked, lower  
lobe little longer; least depth  
of caudal peduncle  $3\frac{1}{8}$ ; pectoral  
 $1\frac{1}{6}$ ; ventral  $1\frac{3}{4}$ . Vent at first  $\frac{2}{5}$   
of depressed ventral, 5 scales before spinous dors.

Uniformly pale brownish,  
with more or less whitish or  
silvery. Top of head, end of  
mandible and snout dusted



denticles, with 2 to 4 transverse series of basal elements; ~~and~~ circuli fine.

D. VIII - I, 9, I, fourth spine  $2\frac{1}{2}$  to  $2\frac{3}{5}$  in total head length, first ray  $1\frac{7}{8}$  to 2; A. II, 8, I, second spine 4 to  $4\frac{1}{5}$ , first ray  $2\frac{1}{8}$  to  $2\frac{1}{5}$ ; caudal  $1\frac{2}{5}$  to  $1\frac{1}{3}$ , moderately emarginate behind; least depth of caudal peduncle 3; pectoral  $1\frac{7}{8}$  to 2; ventral 2 to  $2\frac{1}{8}$ .

Back and upper surface brown, sides and below paler and with slight silvered tinge. Iris whitish, with slight brownish tinge above. Dusky brown bar from mandible tip along side of snout to eye. Small dusky brown spot, much less than pupil, each side of occiput. Round blackish blotch medianly at caudal base, large as pupil. Fins all pale



with dusky brown. Patch of  
dusky dots on middle of  
opercle. Each scale of back  
above with submarginal arc of  
dusky brown dots. narrow  
band of dusky dots along  
scales at anal base. Gray  
band from pectoral axil to  
caudal base medially, little  
less in width than pupil at  
greatest expansion, which  
opposite soft dorsal and anal.  
Fins all pale, with arc of dusky  
dots at pectoral base.



Depth  $2\frac{7}{8}$  to 3; head  $2\frac{1}{3}$  to  $2\frac{2}{5}$ , width  $2\frac{1}{4}$  to  $2\frac{1}{3}$ . Snout  $4\frac{1}{8}$  to  $4\frac{1}{5}$  in head from snout tip; eye 3 to  $3\frac{2}{5}$ , greater than snout or interorbital; maxillary reaches opposite eye center, expansion  $2\frac{1}{4}$  to  $2\frac{2}{5}$  in eye, length 2 to  $2\frac{1}{8}$  in head; narrow bands of villiform teeth in jaws on vomer and palatines; interorbital  $4\frac{1}{3}$  to  $4\frac{1}{2}$  in head, nearly level; preopercle ridge and edge finely denticulate; preorbital entire. Gill rakers  $7+18$ , lanceolate,  $2\frac{1}{3}$  in eye, much longer than gill filaments.

Scales 23 or 24 in lateral line to caudal base and 3 or 4 more on latter, 2 or 3 above, 5 or 6 below, 3 predorsal, 2 rows on cheek to preopercle ridge. Tubes in lateral line simple, rather large, with small crimped basal scale to each. Scales with 6 to 9 basal radiating striae, 65 to 87 apical



2061

A species known chiefly by its combination of characters. It has a rather deep compressed body. Vent before tips of depressed ventrals and variably one to five scales in advance of the spinous dorsal origin. Scales always less than 40 to caudal base. Pectoral variable, large, about 5 or more times in to total length of fish. Specimens of Atherina endrachtensis, especially if faded out, are very similar and then about the only character for distinction is the somewhat variably smaller pectoral.



Atherina forskalii Rüppell <sup>2077</sup>

Atherina forskalii Rüppell, Neue  
Wirbelth. Fische, p. 132, pl. 33, fig. 1,  
1835 (type locality, Red Sea). —

— Jerdon, Madras Journ. Lit. Sci.,  
1851, p. 140. — Günther, Cat. Fish.  
Brit. Mus., vol. 3, p. 397, 1861 (Red  
Sea).

— Day, Fishes of Malabar, p. 135, 1865.  
— Martens, Verh. zool. bot. Ges. Wien,  
vol. 16, p. 379, 1866 (Koseir).

— Day, Fishes of India, pt. 2, p. 345,  
pl. 71, fig. 4, 1876.

— Macleay, Proc. Linn. Soc. New South  
Wales, vol. 7, p. 362, 1882 (New Guinea).  
— Klunzinger, Fische Roth. Meer., p.  
130, pl. 11, figs. 3-a, 1884.



age; opercular spines 3, upper most advanced and lower nearer median. Gill rakers 8 + 15, lanceolate, robust, equal gill filaments or  $2\frac{1}{4}$  in eye; 6 above and 5 below rudimentary.

Scales 90 to 93 in lateral line to caudal base and 10 to 15 more on latter; tubes 54 to 56 in lateral line to caudal base and 5 or 6 more on latter; 17 or 18 scales above lateral line, 28 to 30 below, 53 to 66 predorsal forward to snout end, 25 to 27 rows obliquely across cheek to preopercle edge; scales on head and body anteriorly with fine auxiliary basal scales, little distinct on hind half of body; upper half of maxillary expansion finely scaly, with 16 to 18 transverse rows. Scales with 7 or 8 basal radiating striae; 36 to 44 apical denticles,



— Day, Fauna British India, Fishes,  
vol. 2, p. 338, fig. 113, 1889.

— Sauvage, Hist. nat. Madagascar,  
Poiss., p. 522, 1891 (reference). —  
Duncker, Mitteil. Naturh. Mus.  
Hamburg, vol. 21, p. 165, 1903 (1904)  
(compiled). — Evermann and Seale,  
Bull. Bur. Fisher., vol. 26, p. 59,  
1906 (1907) (Bulan; Bacan). —  
Seale, Philippine Journ. Sci., vol. 5,  
no. 4, p. 268, 1910 (Sandakan); vol.  
9, p. 60, 1914 (Hong Kong). — Jordan  
and Hubbs, Stanford Public., p. 40,  
1919 (Bombay).



Depth  $2\frac{7}{8}$  to  $3\frac{1}{5}$ ; head  $2\frac{1}{2}$  to  $2\frac{3}{4}$ , width  $1\frac{7}{8}$  to  $2\frac{2}{5}$ . Snout 4 to  $4\frac{2}{5}$  in head from snout tip; eye  $4\frac{1}{3}$  to 6, 1 to  $1\frac{3}{5}$  in snout, subequal with interorbital; maxillary extends beyond eye, about half eye diameter with age, expansion 1 to  $1\frac{1}{8}$  in eye, length  $1\frac{4}{5}$  to 2 in head from snout tip; teeth fine, conic, with pair of upper, wide set, front canines, often double and inner rows depressible with anterior longer; lower teeth similar, only inner longer, hinged, with 3 or 4 rows along sides of jaws, pair of front canines small and closer than upper; bands of fine teeth on vomer and palatines, none on tongue; nostrils about equal; interorbital  $5\frac{3}{4}$  to 6, slightly convex; preopercle edge feebly serrate, serrae obsolete with



— Fowler, Mem. Bishop Mus., vol. 10,  
p. 119, 1928 (compiled); Proc. Acad.  
Nat. Sci. Philadelphia, 1929, p. 603  
(Hong Kong). — Borodin, Bull.  
Vanderbilt Marine Mus., vol. 1, art. 2,  
p. 49, 1930 (Sudan, Red Sea, Ponape,  
Carolines).



Zanzibar, 1866, p. 3, pl. 3, fig. 1.

Cephalopholis sonnerati Snyder, Proc.

U. S. Nat. Mus., vol. 42, 1912, p. 498

(Okinawa).

Epinephelus miltostigma Bleeker,

Verh. Kon. Akad. Wet. Amsterdam, vol.

14, no. 2, 1874, p. 43. Amboina; Atlas

Ichth. Ind. Néerl., vol. 7, 1873-76, p. 37

(Amboina); vol. 8, 1876-77, pl. (52) 330, fig.

5.

Epinephelus playfairi Bleeker, Verh.

Kon. Akad. Wet. Amsterdam, vol. 18, no. 3,

1879, p. 3. Mauritius.



Atherina forskalei Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, p. 1085, 1849 (Sea of Pinang). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, p. 216, 1905 (1906) (reference). — Weber,

Siboga Exped., vol. 57, Fische, p. 134, 1913 (Paternoster Island, Kajoa, Obi Major, Fau, Gisser, Buton Strait, Banda, Kai Island). —

Jordan and Hubbs, Ann. Carnegie Mus., vol. 11, nos. 3-4, p. 462, pl. 46, November 5, 1917 (Port Said, Egypt). —

Jordan and Starks, Ann. Carnegie Mus., vol. 11, nos. 3-4, p. 439, November 5, 1917 (Ceylon).

— Pellegrin, Annuaire. Mus. Zool. Reg. Univ. Napoli, new ser., vol. 3, no. 27, p. 7, July 11, 1912 (Erythrea).



Cephalopholis urodelus Seale and Bean,  
Proc. U. S. Nat. Mus., vol. 33, 1907, p. 243

(Gambounga). — Snyder, Proc. U. S. Nat.  
Mus., vol. 42, 1912, p. 498 (Okinawa).

Bodianus miniatus (part) Schneider, Syst.  
Ichth. Bloch, 1801, p. 333.

Serranus erythraeus Valenciennes, Hist.  
Nat. Poiss., vol. 6, 1830, p. 516. Mauritius.

— Günther, Cat. Fishes Brit. Mus., vol. 1,  
1859, p. 116 (copied). — Jatzow and Lenz,  
Abhandl. Senckenberg. <sup>Naturf.</sup> Gesell., vol. 21, 1889,  
p. 498 (Hiddabra).

Serranus erythraeus Meyer, Ann. Soc.  
Españ. Hist. Nat. Madrid, vol. 14, 1885,  
p. 9 (Korda, Mysore).

Epinephelus erythraeus Sauvage, Hist. Nat.  
Madagascar, Poiss., 1891, p. 57, pl. 10, fig. 1.

Serranus sonnerati (part) Günther, Cat.  
Fishes Brit. Mus., vol. 1, 1859, p. 122  
(Sumatra). — Playfair, Fishes of



2081

— Weber, Zool. Mededeel. Mus.  
Leiden, vol. 6, p. 47, 1921.

— Weber and Beaufort, Fishes  
Indo Austral. Archip.; vol. 4, p. 274,  
1922 (Pulu Weh; Simalur; Pulu  
Babi; Alehleh, Pulu Pangang,  
Sumatra; Samarang; Paternoster  
Islands; Makassar and Menado,  
Celebes; south Flores; south Sumba;  
Buton; Lembon; Kajoa; Boneke,  
Waigiu). — Duncker and Mohr,  
Mitteil. Naturh. Mus. Hamburg,  
vol. 42, p. 135, 1926 (Thilenius  
and Simpson harbors, New Pommernia).

— Schmidt, Trans. Pac. Comm. Acad.  
Sci. U. S. S. R., vol. 2, p. 179, 1931  
(Kominato).



Epinephelus wrodelus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 41 (Sumatra, Cocos, Nias, Java, Celebes, Sangir, Ternate, Obi major, Timboina, New Guinea); vol. 8, 1876-77, pl. (43) 321, fig. 2. — Streets, Bull. U. S. Nat. Mus., No. 7, 1877, p. 91 (Fanning Islands). — Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 192 (Mysol, Timboina, Solomons, Aneiteum, Micronesia, Mauritius, Zanzibar, Seychelles, Sumatra). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, 1901, p. 75 (Riu Kiu). — Weber, Siboga Exped., vol. <sup>57</sup>~~65~~ <sup>Fishes</sup>, 1913, p. 200 (Bintangsa Island; Banda Island).

Epinephelus wrodelus var. wrodelus Steindachner, Abhandl. Senckenberg. Naturf. Gesell., vol. 25, 1900, p. 414 (Ternate).



Atherina hepsetus (not Linnaeus)  
Forskål, Descript. Animal., p. 69,  
 1775.

Atherina lacunosa (not Schneider)  
Bleeker, Nat. Tijds. Ned. Indië,  
 vol. 5, p. 504, 1853 (Padang; part).

Atherina pinguis (not Lacépède)  
Bleeker, Act. Soc. Sci. Ind. Néerl.  
 (Sumatra), vol. 8, p. 84, 1860.

— Klunzinger, Verh. zool. bot. Ges.  
 Wien, vol. 20, p. 833, 1870 (Red Sea).



1059

Cephalopholis urodelus (Schneider).

Perca urodetam (Forster) Schneider,  
Syst. Ichth. Bloch, 1801, p. 333. St.  
Christina, Waitaho.

Perca urodeta (Forster) Lichtenstein,  
Descr. Animal., 1844, p. 221 (St. Christina).

Serranus urodelus Valenciennes, Hist.  
Nat. Poiss., vol. 2, 1828, p. 306 (Tahiti);  
vol. 6, 1830, p. 513 (Ulea). — Günther,  
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 122  
(India and Amboyna); Journ. Mus.

Godeffroy, vol. 1, pt. 1, 1873, p. 3, pl. 3, fig.  
A (Society, Kingmills, Hervey, Tuamotu  
and Solomon Islands, East Indies);

Cruise of Curacao, Breckley, 1873, p.  
409 (Solomon Islands), p. 410 (Misol,  
Moluccas). — Martens, Preuss. Exped. Ost-  
Asien, vol. 1, 1876, p. 385 (Amboyna). —

Meyer, Ann. Soc. Españ. Hist. Nat. Madrid,  
vol. 14, 1885, p. 9 (North Celebes).



2083

One example. Hogas Point, Panay.  
February 3, 1908. Length 67 mm.  
Scales 43. Pectoral  $5\frac{1}{2}$  in total  
fish.

Six examples. North end of  
Endeavour Strait, North west coast  
of Palawan. December 22, 1908.  
Scales 42. Pectoral with black subterminal  
blotch. Two faint dark streaks on side.  
Vent midway in depressed ventrals.

Nineteen examples. Port Caltom,  
Busuanga Island. December 15, 1908.  
Scales 44. Pectoral  $5\frac{3}{5}$  in total length,  
with dark subterminal blotch. Vent just  
before tip of depressed ventral.

Five examples. Atulayan Bay, Luzon.  
June 17, 1909. Length 39 to 60 mm.



8494 to 8496. Catbalogan, Samar  
Island. April 16, 1908. Length 95 to 105 mm.  
north Balabac Strait.

6860. Caxisigan Island, January 2,  
1909. Length 79 mm.

~~23960 and 23961. Danawan and Vi  
asil Islands. September 26, 1909.  
Length 75 to 86 mm.~~

~~23444 and 23446. Dovorai Islands.  
December 2, 1909. Length 50 to 80 mm.~~

23332 to 23338. Endeavor Strait.  
December 22, 1908. Length 50 to 85 mm.

227. Endeavor Strait. December 24, 1908.  
Length 83 mm.

23693. Gomomo Island. December 3, 1909.  
Length 43 mm.



2084

Atherina valenciennae Bleeker

Atherina valenciennae Bleeker,  
Nat. Tijds. Ned. Indië, vol. 5, p.  
507, 1853 (type locality, Padang;  
Batavia). — Fowler, Mem. Bishop  
Mus., vol. 10, p. 119, 1928 (compiled).



- Epinephelus minimatus Bleeker,  
 Atlas Ichth. Ind. Néerl., vol. 7, 1873-76,  
 p. 41 (Sumatra, Java, Celebes, Flores,  
 Ternate, Batjan, Obi Major, Buru,  
 Ceram, Amboina, Waigiu, New Guinea).  
 — Sauvage, Hist. Nat. Madagascar, Poiss.,  
 1891, p. 52. — Boulenger, Cat. Fishes Brit.  
 Mus., vol. 1, 1895, p. 191 (Zanzibar, Mauritius,  
 Ceylon, Madras, Andamans, North Celebes,  
 Amboina, Apamama, Samoa). —  
Steindachner, Denkschr. Akad. Wiss. Wien,  
 vol. 71, pt. 1, 1907, p. 124 (Bah-Häf, Socotra).  
 — Pellegrin, Bull. Mus. Hist. Nat. Paris,  
 vol. 13, 1907, p. 204 (Tuléar, Madagascar).  
 — Gilchrist and Thompson, Ann. South  
 Afr. Mus., vol. 6, 1908-10, p. 215 (Natal).  
 — Weber, Siboga Exped., vol. <sup>57 Fische,</sup> 65, 1913, p. 200  
 (Beo; Salomabie; Saleyer; Banda;  
 Tiur, Island; Pepla Bay, Rotti). —  
Barnard, Ann. South Afr. Mus., vol. 21,



Atherina valenciennesii Bleeker,  
Nat. Tijds. Ned. Indië, vol. 15,  
p. 242, 1858 (Singapore). —

Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 398, 1861 (copied). —

Jordan and Snyder, Annot. Zool.  
Japan., vol. 3, p. 62, 1901 (reference).

— Weber, Siboga Exped., vol. 57,  
Fische, p. 136, 1913 (Macassar,  
Biaru).



(no locality). — Playfair, Fishes of Zanzibar, 1866, p. 3 (Aden). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 20, 1870, p. 679 (Koseir). — Günther, Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 5, pl. 5 (Polynesia, Samoa). — Day, Fishes of India, pt. 1, 1875, p. 24, pl. 6, fig. 2. — Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 435 (Mauritius). — Klunzinger, Fische Roth. Meer., 1884, p. 4 (Koseir). — Day, Fauna Brit. India, vol. 1, 1889, p. 456. — Pearson, Rep. Gov. Marine Biol. Ceylon, 1912-13, pt. 4, p. E13.

Cromileptes miniatus Swainson, Nat. Hist. Animals, <sup>Fishes?</sup> vol. 2, 1839, p. 201 (on Rüppell, pl. 26, fig. 3).

Alphapopholis miniatus Fowler, Proc. Acad. Nat. Sci. Phila., 1901, p. 252.

~~Alphapopholis miniatus Fowler, Proc. Acad. Nat. Sci. Phila., 1901, p. 252.~~  
~~Alphapopholis miniatus Fowler, Proc. Acad. Nat. Sci. Phila., 1901, p. 252.~~



Atherina valenciennesi Bleeker,  
 Nat. Tijds. Ned. Indië, vol. 20,  
 p. 203, 1859-60 (Karangbollong).

— Sauvage, Hist. Nat. Madagascar,  
 Poiss., p. 407, 1891 (reference). —

Weber, Zool. Mededeel. Mus. Leiden,  
 vol. 6, p. 52, 1921 (

— Weber and Beaufort, Fishes Indo-  
 Austral. Archip., vol. 4, p. 272, <sup>fig. 70</sup> 1922

(Batavia, Samarang, Surabia,  
 Pekalongan, Panarukan; Kota  
 Baru, Balik-papan, Borneo;  
 Macassar; Flores; Biaru). —

Uncker and Mohr, Mitteil. Naturh.  
 Mus. Hamburg, vol. 42, p. 135, 1926

(Simpson Harbor, New Pomerania).

— Fowler, Journ. Bombay Nat. Hist. Soc., vol. 33, no. 1, p. 106, September 30, 1928 (Bombay).

Hepsetia valenciennesi Jordan and

Hubbs, Stanford Public., p. 33,  
 1919 (reference).



Cephalopholis miniatus (Forskål).

Perca miniata Forskål, descript.

Animal., 1775, pp. XII, 41. Djedda and  
Lohaja, Red Sea. — Bonnaterre, Tabl.  
Ichth., 1788, p. 131 (on Forskål). —

Gmelin, Syst. Nat. Linn., <sup>vol. 1</sup> 1789, p. 1317  
(Arabia). — Walbaum, Sist. di Pisc.,  
vol. 3, 1792, p. 338 (on Forskål).

Bodianus miniatus Schneider, Syst.  
Ichth. Bloch, 1801, p. 332 (Red Sea). —

Fowler, Journ. Acad. Nat. Sci. Phila.,  
ser. 2, vol. 12, 1904, p. 522 (Cedang,  
Sumatra).

Diacope miniata Cuvier, Hist. Nat. Poiss.,  
vol. 2, 1828, p. 433 (on Forskål).

Serranus miniatus Rüppell, Atlas  
Reise nördl. Afri., <sup>part 2</sup> Fische, 1828, p. 106, pl. 26,  
fig. 3 (Red Sea). — Peters, Arch. Naturg.,  
1855, p. 235 (Mozambique). — Günther,  
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 118



Depth  $4\frac{3}{4}$  to 5; head 4 to  $4\frac{1}{8}$ , width  $1\frac{3}{4}$  to  $1\frac{4}{5}$ . Snout  $3\frac{1}{2}$  to 4 in head; eye  $2\frac{2}{3}$  to  $2\frac{3}{4}$ , greater than snout, 1 to  $1\frac{1}{8}$  in interorbital; maxillary reaches eye, length  $2\frac{3}{5}$  to  $2\frac{4}{5}$  in head; teeth villiform, minute, in bands in jaws, on vomer and palatines; interorbital  $2\frac{2}{5}$  to  $2\frac{1}{2}$ , level. Gill rakers 6 + 19, lanceolate, little longer than gill filaments or  $2\frac{1}{5}$  in eye.

Scales 39 or 40 in medial lateral series to caudal base and 4 or 5 more on latter; 8 transversely, 19 to 21 predorsal, single row on cheek. Scales with 2 or 3 close set median basal



4 predorsal, 2 or 3 rows on cheek.  
Tubes in lateral line large, simple,  
each well exposed and with small  
basal crenulated scale. ~~each side~~  
Scales with  
21 to 25 basal parallel to subradiating  
striae; 179 to 230 apical denticles, with  
3 or 4 transverse series of basal elements;  
~~none~~ circuli fine, none apical.

D. VII - I, 9, I, third spine  $1\frac{2}{3}$  in  
total head length, second branched  
dorsal ray long as head in male or  
 $1\frac{1}{5}$  to  $1\frac{2}{5}$  in female; A. II, 8, I, second  
spine  $2\frac{3}{4}$  to 3, first branched ray  $1\frac{1}{2}$   
to  $1\frac{3}{4}$ ; caudal <sup>equally head,</sup> little emarginate  
behind, upper lobe usually longer,  
both lobes more or less rounded;  
least depth of caudal peduncle  $1\frac{7}{8}$  to



points; 25 to 35 parallel vertical striae.

D. V — I, 9, I, first spine  $2\frac{1}{5}$  to  $2\frac{1}{4}$  in head, first branched ray  $1\frac{2}{5}$  to  $1\frac{4}{5}$ ; A. III, I, 10, I, first branched ray  $1\frac{2}{3}$  to  $1\frac{3}{4}$ ; caudal  $1\frac{1}{10}$  to  $1\frac{1}{8}$ , forked; least depth of caudal peduncle 3 to  $3\frac{1}{8}$ ; pectoral  $1\frac{1}{6}$  to  $1\frac{1}{4}$ ; ventral  $1\frac{4}{5}$  to  $1\frac{7}{8}$ . Vent before first third in depressed ventral and 6 scales back to vertical line through body from first dorsal origin.

Light brown, paler below. Each scale on back above sprinkled with dusky brown dots, though



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Depth  $2\frac{1}{3}$  to  $2\frac{2}{5}$ ; head  $2\frac{2}{3}$  to  $2\frac{3}{4}$ ,  
width  $1\frac{4}{5}$  to 2. Snout  $3\frac{7}{8}$  to  $4\frac{1}{5}$  in  
head from snout tip; eye  $2\frac{7}{8}$  to 3,  
greater than eye or interorbital; maxillary  
reaches  $\frac{3}{5}$  to  $\frac{2}{3}$  in eye, expansion  $2\frac{1}{3}$  to  $2\frac{2}{5}$   
in eye, length 2 to  $2\frac{1}{10}$  <sup>in head</sup>; teeth in villiform  
bands in jaws, on vomer and palatines;  
interorbital 4 to  $4\frac{1}{4}$ , nearly level;  
preopercle ridge entire in young, finely  
serrate with age, also preopercle edge  
always serrate; preorbital and  
edge of orbital socket always entire.  
Gill rakers 6 + 16, lanceolate, much  
longer than gill filaments or  $2\frac{1}{4}$  in eye.

Scales 23 or 24 in lateral line  
to caudal base and 6 or 7 more on  
latter, 2 or 3 above, 6 or 7 below, 3 or



leave broad uniform margin.  
Underlaid gray band from  
pectoral axil to caudal base  
medianly, widest at latter  
not quite equal to eye. Iris  
slaty. Row of dusky dots on  
lower surface of tail close  
along anal base. Fins all pale,  
hind caudal edge dusky.  
Narrow dusky line across  
pectoral base.



Amia griffini Seale.

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Amia griffini Seale, Philippine  
Journ. Sci., vol. 5, no. 2, 1910, p.  
117, plate 2, fig. 2. Bantayan  
Island, Philippines.



2090

Two examples. Sandakan Bay,  
Borneo. March 1, 1908. Length 77  
to 84 mm.

Five examples. Sandakan Bay.  
March 2, 1908. Length 69 to 84 mm.

<sup>Seven</sup>  
~~Five~~ examples. Kowloon, China.  
August 22, 1908. Length 17 to ~~22~~<sup>90</sup>  
mm. In poor condition.

Two examples. Kowloon. September  
14, 1908. Length 74 to 84 mm.

Two examples. Kowloon. November  
1, 1908. Length 55 to 90 mm. Caught  
with dip net over ship side by means  
of submarine light.



Pale brown generally. Upper surfaces of head and back with each scale edged with minute dusky dots, little contrasted. Three parallel dark close set dusky lines down middle of predorsal. Narrow dark axial line on side from above ventral origin to middle of caudal base. Cutaneous lateral flap along each side of mandible blackish anteriorly, pale or whitish toward base, dark color due to minute blackish dots. Iris white. Lower median cutaneous keel of mandible sprinkled with dark or gray dots. Fins largely pale or whitish, dorsal and caudal tinged with gray. Each ventral with few black dots before base and several at tip of each fin.

U. N. S. P., 20. 59860. Chiang Mai, North Siam. January 22, 1933. Length 69 mm. Type.



A. N. S. P., three examples. Bombay,  
Prof. F. Hallberg. Length 70 to 76 mm.



6 examples. Canmaha Bay, Luzon.  
March 11, 1909. Length 50 to 60 mm.

8498 to 8538. Catbalogan, Samar.  
April 16, 1908. Length 78 to 85 mm.

26 examples. Cataingan Bay, Masbate  
Island. April 18, 1908. Length 25 to 35 mm.

1589 [D. 5136]. Jolo Light, S.  $37^{\circ}$  E.,  
0.70 mile ( $6^{\circ} 04' 20''$  N.,  $120^{\circ} 59' 20''$  E.),  
vicinity of Jolo. In 22 fathoms.

February 14, 1908. Length 82 to 90 mm.  
5 examples.

18177, 18178. Port San Pio Quinto,  
Camiguin Island, China Sea, vicinity  
Batanes. November 11, 1908. Length  
64 to 67 mm.

6 examples. U.S.N.M. Acc. No. 100,455.  
Length 34 to 63 mm.



(Boleling, Bali); vol. 18, p. 354,  
1859 (Bawean); Act. Soc. Ind.  
Néerl., vol. 3, no. 9, p. 4, 1857-58  
(Trussan, Sumatra); vol. 6, no.  
2, p. 4, 1859 (Dorek, New Guinea).

— Alleyne and Macleay, Proc.  
Linn. Soc. New South Wales, vol.  
1, p. 339, 1876 (Cape York). —

Boulenger, Ann. Mag. Nat. Hist.,  
ser. 6, vol. 20, p. 373, 1891 (Rotuma).

— Sauvage, Hist. Nat. Madagascar,

Poiss., p. 407, 1891 (reference). —

— Waite, Rec. Austral. Mus., vol. 5, pt. 3, p. 197, March 11, 1904 (reference).

^ Jordan and Seale, Bull. Bur.

Fisher., vol. 25, p. 216, 1905 (1906)

(reference). — Seale, Occas. Pap.

Bishop Mus., vol. 6, no. 1, p. 15, 1906

(Shortland Island; 'Faté'). —

Evermann and Seale, Bull. Bur.

Fisher., vol. 26, p. 59, 1906 (1907)



Cavallius, new genus

Body elongately ellipsoid, moderately compressed, especially posteriorly. Caudal peduncle rather deep. Head large, depressed, upper profile depressed over eye. Snout broad, depressed, convex in profile. Eye small, high, before first third in head, with free lids. Mouth rather large, terminally superior. Lips rather narrow, fleshy. Mandible well protruded, broad, shallow. Teeth in jaws in bands, conic, larger and smaller intermixed. Tongue broad, spatulate, edge convex in front. Nostrils small, similar, close together, close before eye. Interorbital low, depressed to level. Gill rakers short, low, broad, rather small. Scales small, crowded and cycloid.



- Waite, Rec. Canterbury Mus., vol. 1, no. 1, p. 15, April 25, 1907 (reference). <sup>12994</sup>  
(Bacon). — Jordan and Richardson,  
Bull. Bur. Fisher., vol. 27, p. 243,  
1907 (1908) (Sydney). — Seale and  
Bean, Proc. U. S. Nat. Mus., vol. 33,  
p. 240, 1907 (Zamboanga). —  
Kendall and Goldsborough, Mem.  
Mus. Comp. Zool., vol. 26, 1911, p.  
253 (Wotje; Moen). — Ogilby,  
Mem. Queensland Mus., vol. 1, p.  
40, pl. 12, fig. 2, text fig. b, 1912  
(Bulwer). — Whitley, Pan Pac.  
Res. Inst. Journ., vol. 3, no. 1,  
p. 12, January-March 1928 (Santa  
Cruz Islands).



Handus nebulosus (Gray)○

Six, 52 to 77 mm., Chantaboon.

Pristolepis fasciatus (Bleeker)○

Seventy-eight, 37 to 150 mm.,  
Chiang Mai; three, 93 to 106 mm.,  
Hua Mak; one, 81 mm., Bua  
Yai; seven, 71 to 82 mm., Chantaboon;  
two, 143 to 152 mm., Bangkok.

Scorpaenidae

Scorpaenopsis novae-guineae (Bleeker)○

One, 151 mm., Bangkok.

Toxotidae

Toxotes micropis (Günther)○

One, 115 mm., Bangkok.

Chaetodontidae

Heniochus acuminatus (Linnaeus)○

One, 174 mm., Chantaboon?

Siganidae



Hepsetia lacunosa Jordan and Hubbs,  
Stanford Public., p. 33, 1919 (reference).  
 — McCulloch and Whitley, Mem.  
Queensland Mus., vol. 8, pt. 2, p. 140,  
 July 7, 1925 (reference). — Whitley,  
Journ. Pan Pac. Res. Inst., vol.  
 2, no. 1, p. 4, January-March 1927  
 (Fiji); — Fowler, Mem. Bishop Mus.,  
 vol. 10, p. 120, 1928 (Shortland Island;  
 Fate; Moen; Wotje). — McCulloch,  
Mem. Austral. Mus., vol. 5, pt. 1,  
 p. 109, June 29, 1929 (reference). —  
Fowler, Mem. Bishop Mus., vol. 11,  
 no. 5, p. 324, 1931 (compiled).

Rec. Austral. Mus., vol. 16, no. 1, p. 11,  
 October 7, 1927 (Michaelmas Cay,  
 Queensland).



Siam. March 12, 1933. Length  
150 mm. Type.

Differs from Johnius jubatus  
(Bleeker), known from the Malay  
Peninsula, Sumatra, and Borneo,  
in the dark or blackish cuneate  
blotch on the pectoral fin. In  
that species as described by  
Bleeker no mention is made of  
the black axillary pectoral blotch,  
if present. Though Bleeker  
says "præoperculo ~~\*\*\*\*\*~~ margine  
posteriore inferne præsertim  
conspicue denticulato" his figure  
shows it entire. He also does not  
mention or show any of the  
opercular bones denticulated.  
His figure shows a more terminal  
mouth than my specimen, also the  
pectoral fin reaching a little  
more posteriorly.  
(Μέλας black + Βραχίον arm  
or pectoral fin.)



Atherina argyrotaeniata Bleeker

? Atherina argyrotaeniata Bleeker,  
Journ. Ind. Archip., vol. 3,  
p. (69) 72, 1849 (type locality,  
Macassar). — Günther, Cat.  
Fish. Brit. Mus., vol. 3, p. 392,  
1860 (reference).

Atherina argyrotaenia Bleeker,  
Nat. Tijds. Ned. Indië, vol. 17,  
p. 143, 1858-59 (Boleling, Bali).  
— Jordan and Hubbs, Stanford  
Public., p. 41, 1919 (reference).



Cephalopholis pachycentron Evermann  
and Seale, Bull. Bur. Fisher., vol. 26,  
1906 (1907), p. 76 (Bacon).

Serranus guttatus (non Bloch) Valenciennes,  
Hist. Nat. Poiss., vol. 2, 1828, p. 359  
(specimen from Saigon).

Serranus ganamella (non Valenciennes)  
Bleeker, Verh. Batav. Genootsch. (Percoid),  
vol. 22, 1849, p. 33 (Batavia, Java). —

Günther, Cat. Fishes Brit. Mus., vol. 1, 1859,  
p. 116 (copied). — Gorgoza, Ann. Soc.  
Españ. Hist. Nat. Madrid, vol. 17, 1888,  
p. 282 (Mindoro).

Serranus microprion Bleeker Nat. Tijds.  
Ned. Indie, vol. 3, 1852, p. 552. Amboyna.  
— Günther, Cat. Fishes Brit. Mus., vol.  
1, 1859, p. 116 (~~Amboyna, China~~ Louisiades).  
— Elera, Cat. Fauna Filip., vol. 1, 1895,  
p. 460 (Samar, Villa real, Panay).



~~Hepsetia brachyptera Bleeker~~

? Atherina brachypterus Bleeker,  
Nat. Tijds. Ned. Indië, vol. 2,  
p. (227) 243, 1851 (type locality,  
Banda, Neira).

Atherina brachyptera Günther,  
Cat. Fish. Brit. Mus., vol. 3,  
p. 401, 1861 (copied). — Sauvage,  
Hist. Nat. Madagascar, Poiss.,  
p. 406, 1891 (reference).

Hepsetia brachyptera Jordan  
and Hubbs, Stanford Public.,  
p. 34, 1919 (reference).



more broken blotches on soft fin.  
Caudal grayish, with 5 blackish  
rescentic bars posteriorly. Anal  
grayish, with 6 variably oblique  
dark bands. Paired fins gray,  
with transverse dark bands,  
two dark bars on caudal base.

A. N. S. P., No. 60009. Bangkok,  
Siam. March 11, 1933. Length  
215 mm. Type.

A. N. S. P., No. 60010, Paratype,  
same data. Length 192 mm. Also  
3 others with same data, 134 to 183  
mm.

Distinctions in the generic  
account.

(Πλάτος wide + κεφαλή head,  
head much broader than deep.)

Buteis buteis (Buchanan-Hamilton)  
Two, 93 to 108 mm., Bangkok.



~~Atherina temminckii~~ ~~Bleeker~~

2098

Atherina temminckii Bleeker, Nat.  
Tijds. Ned. Indië, vol. 5, p. 506,  
1853 (type locality, Priaman, Sumatra;  
Batavia); vol. 12, p. 193, 1856  
(Ternate); Act. Soc. Sci. Ind.  
Néerl., vol. 1, no. 3, p. 5, 1856  
(Manado); vol. 3, no. 5, p. 2,  
1857-58 (Macassar). — Günther,  
Cat. Fish. Brit. Mus., vol. 3, p. 392,  
1860 (reference). — Sauvage, Hist.  
Nat. Madagascar, Poiss., p. 407,  
1891 (reference). — Jordan and  
Seale, Proc. U. S. Nat. Mus., vol. 28,  
p. 774, 1905 (Negros). — Evermann  
and Seale, Bull. Bur. Fisher., vol.  
26, p. 59, 1906 (1907) (Bulan; Bacan).



$3\frac{1}{5}$  to  $3\frac{1}{3}$ , sixth ray  $2\frac{1}{3}$  to  $2\frac{3}{5}$ ; caudal  $1\frac{3}{5}$  to  $1\frac{4}{5}$ , rounded; least depth of caudal peduncle  $2\frac{3}{5}$  to 3; pectoral  $1\frac{1}{2}$  to  $1\frac{3}{5}$ ; ventral  $1\frac{7}{8}$  to  $2\frac{1}{8}$ .

Orange red, little faded, lower surface little lighter or brighter. Except paired fins, head below and abdomen, body with small dark brown ringed or ocellated blue spots. Eye yellowish, with several brown spots. Inside gill opening more or less tinged with orange. Margins of vertical fins, also of ventrals, narrowly blackish brown. Upper and lower edges of caudal with narrow whitish edges, but not extending to middle rays. Paired fins deep orange red.



— Weber, Siboga Exped., vol. 57,  
Fische, p. 135, 1913 (Paternoster  
Islands, Siau, Tau, Ceram,  
Saleyer). — Jordan and Hubbs,  
Stanford Public., p. 41, 1919  
(reference). — Fowler, Mem. Bishop  
Mus., vol. 10, p. 118, 1928 (Truk;  
Wotje; Suva; Rangiroa; Moen;  
Arhno; Ratak Chain; Guam).



or  $\frac{1}{2}$  of eye; 5 to 7 above and below rudimentary.

Scales 90 to 103 in lateral line to caudal base and 15 to 18 more on latter; tubes 48 to 52 in lateral line to caudal base and 3 or 4 more on latter; 14 to 17 scales above lateral line, 27 to 34 below, 54 to 56 predorsal, 24 to 28 rows across cheek; basal portions of fins more or less covered with small scales; body scales without fine auxiliary basal scales; maxillary with upper  $\frac{3}{5}$  of expansion finely scaled. Scales with 7 or 8 basal radiating striae; 31 to 51 apical denticles, with 3 or 4 transverse series of basal elements; circuli fine.

D. IX, 15, I or 14, I, fourth spine  $3\frac{1}{4}$  to 4 in total head length, twelfth ray  $2\frac{1}{3}$  to  $2\frac{7}{8}$ ; A. III, 9, I, third spine



Atherina temminckii Bleeker, Nat.  
Tijds. Ned. Indië, vol. 22, p. 249,  
1860 (Timor). — Weber, Zool. Ned.  
Mus. Leiden, vol. 6, p. 52, 1921  
( ). — Weber and  
Beaufort, Fishes Indo Austral.  
Archip., vol. 4, p. 269, 1922 (Pulu  
Weh; Pulu Babi; Paternoster  
Islands; Flores; Adonare; Sumba;  
Saleyer; Siao; Gisser; Kawa,  
Ceram; near Gebe; Tual; Kur).  
— Chevey, Serv. Inst. Océan. Indo  
Chine, 19<sup>e</sup> note, p. 19, August 25,  
1932 (Amam).

Atherina temminckii Borodin, Bull.  
Vanderbit. marine Mus., vol. 1, art. 2,  
p. 49, 1930 ("Kusire, Caroline Islands")  
(error).



Depth  $2\frac{2}{3}$  to 3; head  $2\frac{2}{5}$  to  $2\frac{1}{2}$ , width  
 $2\frac{1}{3}$  to  $2\frac{3}{5}$ . Snout  $3\frac{5}{6}$  to  $4\frac{1}{2}$  in head  
 from snout tip; eye  $5\frac{1}{5}$  to  $7\frac{1}{4}$ ,  $1\frac{1}{5}$  to 2 in  
 snout, greater than interorbital in width  
 to  $1\frac{1}{10}$  with age; maxillary reaches below  
 hind rim of eye or little beyond,  
 expansions <sup>top slightly exceeds</sup> equals eye, length 2 to  $2\frac{1}{10}$   
 in head from snout tip; teeth in bands  
 in jaws, inner depressible and edges of  
 each jaw with outer row little larger;  
 mandible with 6 rows in front narrowing  
 to single inner row posteriorly; pair of  
 canines in front of each jaw; minute  
 teeth on vomer and palatines; interorbital  
 $6\frac{1}{4}$  to  $6\frac{2}{5}$ , convex; preopercle edge  
 minutely and unevenly serrated;  
 lower opercle spine little more  
 advanced and upper more distant  
 from median. Gill rakers 8 or 9 +  
 14 to 17, little longer than gill filaments



2101

Atherina togar Thiollière, Fauna  
Woodlark, p. 183, 1857 (type  
locality, Woodlark Island).

? Atherina japonica (not Bleeker)  
Kner, Reise Novara, Fische, p. 221,  
1865 (Java).



pectoral  $1\frac{3}{5}$ , rays  $\text{I}, 19$ ; ventral  
rays  $\text{I}, 6$ , fin length  $\frac{1}{2}$  in head.

Back gray, with slight  
lilac tinge. Under surfaces  
white with silvery sheen. Head  
gray above, sides and below  
whitish. Iris white. Under  
surface of snout, lips and  
mandible whitish. Opercle dark  
gray. Inside gill opening with  
dark neutral gray to blackish.  
Dorsals and caudal pale to  
whitish basally, shaded with  
gray to dusky terminally. Pectoral  
dark neutral gray to blackish  
medially in triangular formed  
area; inside pectoral base  
large black blotch at axil,  
also inner surface of fin blackish  
like outer. Ventrals and anal  
whitish.



2102

Atherina gobio Klunzinger

Atherina gobio Klunzinger, Fische  
Roth. Meer., p. 130, pl. II, fig. 4, 1884  
(type locality, Red Sea). — Jordan  
and Hubbs, Stanford Public., p. 44,  
1919 (reference).

Atherina cylindrica (not Valenciennes)  
Klunzinger, Verh. zool. bot. Ges. Wien,  
vol. 20, p. 834, 1870 (Red Sea). —  
~~Jordan and Hubbs, Stanford Public.,  
p. 44, 1919 (reference).~~



and therefore fewer. Sometimes body and fins with small crowded gray white spots, often ill defined or variably distinct in preserved examples.

Arabia, Gambia, Delagoa Bay, Natal, Madagascar, Mauritius, Seychelles, India, Ceylon, East Indies, Philippines, Australia, Melanesia, Micronesia, Polynesia. Boulenger gives a maximum length of 540 mm. though we have no examples so large. Most of our specimens pale and in alcohol the markings only variably distinct.



2103

? Atherina insila Jordan and Seale,  
Bull. Bur. Fisher., vol. 25, p. 216,  
fig. 33, 1905 (1906) (type locality,  
Apia). — Kendall and Goldborough,  
Mem. Mus. Comp. Zool., vol. 26, p. 255,  
1911 (Wotje Atoll, Marshalls). —  
Jordan and Hubbs, Stanford Public.,  
p. 42, 1919 (reference).

— Atherina insila Seale, Philippine  
Journ. Sci., vol. 4, p. 498, 1909.

Atherina paratela Jordan and Richardson,  
Bull. Bur. Fisher., vol. 27, p. 243, fig.  
6, 1907 (1908) (type locality, Calayan  
Island). — Jordan and Hubbs,  
Stanford Public., p. 42, 1919  
(reference). — Borodin, Bull.  
Vanderbilt Mus., vol. 1, art. 2, p. 49,  
1930 (Parang, Indian Ocean).



November 28, 1909. Length 158 mm.

13534. Makyan Island. November 29, 1909. Length 117 mm.

19026. North West of Grande Island. July 22, 1908. Length 135 mm.

9957. Roc Can Island, Sulu Sea.

January 7, 1910. Length 200 mm.

6952. West coast Sabtan Island, China Sea, vicinity Formosa. November 8, 1908. Length 293 mm.

pl. (5) 283, fig. 3.

Cephalopholis maculatus Seale and Bean,

Proc. U. S. Nat. Mus., vol. 33, 1907, p. 235,

fig. 5. Zamboanga.

Epinephelus melas (non Peters) Gilchrist  
and Thompson, Ann. South Afr. Mus.,  
vol. 6, pt. 3, 1909, p. 220 (natal).



Atherina endrachtensis (not Quoy<sup>2104</sup>  
and Gaimard) Kendall and Goldsborough,  
Mem. Mus. Comp. Zool., vol. 26, p. 254,  
1911 (Arhuo Atoll; Moen; Suva;  
Rangiroa; Tuamotu).



2092

Atherina  
~~Hepsetia~~ lacunosa ~~Forster~~ Schneider

Atherina lacunosa <sup>nm (Forster)</sup> Schneider,  
Syst. Ichth. Bloch, p. 112, 1801  
(type locality, New Caledonia).

Atherina lacunosa Valenciennes,  
Hist. Nat. Poiss., vol. 10, p. 454,  
1835 (New Caledonia). —

Lichtenstein, Descript. Animal.

Forster, p. 298, 1844 (New Caledonia).

— Bleeker, Nat. Tijds. Ned. Indië,  
vol. 5, p. 504, 1853 (Padang; Batavia;  
Banda, Neira); vol. 6, p. 90, 1854  
(Banda, Neira), p. 204 (Timor,  
Kupang); vol. 8, p. 437, 1855  
(Bonthaian, Celebes); vol. 12,  
p. 193, 1856 (Ternate); vol. 13,  
p. 388, 1857 (Timor, Deli); vol.  
15, p. 201, 1858 (Goram), p. 242  
(Singapore); vol. 17, p. 143, 1858-59



Siganus oramin (Schneider) <sup>2</sup>

Two, 208 mm., Bangkok. Greatly like Day's figure except my specimens show: depth  $2\frac{3}{4}$  to 2. The more slender one with similar black blotch behind gill opening. Both mottled with white or marked with white spots.

Callyodontidae

Callyodon fasciatus (Valenciennes)

One, 270 mm., Bangkok. I thought now largely blue, inclining to green, its pattern of coloration especially about the head is greatly like that of Bleeker's figure of Pseudoscarnus rivulatus.

Eleotridae

Eleotris fusca (Schneider)

One, 150 mm., Bangkok.



Depth  $5\frac{1}{3}$  to 6; head  $3\frac{2}{5}$  to  $3\frac{3}{4}$ , width  $2\frac{1}{3}$  to  $2\frac{2}{3}$ . Snout  $3\frac{7}{8}$  to 4 in head from snout tip; eye  $2\frac{3}{5}$  to 3, greater than snout or interorbital, limping on upper profile; maxillary reaches  $\frac{1}{8}$  to  $\frac{1}{5}$  in eye, length  $2\frac{2}{5}$  to  $2\frac{3}{5}$  in head from snout tip; teeth minute; mandibular rami well elevated inside mouth; interorbital  $3\frac{1}{8}$  to  $3\frac{2}{5}$  in head from snout tip, low, slightly depressed. Gill rakers 5 + 15, lanceolate, slender,  $1\frac{3}{4}$  in eye; gill filaments  $\frac{3}{4}$  of gill rakers.

Scales 40 to 44 in lateral series; 7 transversely, 18 or 19 predorsal. Scales with 1 to 4 basal knobs; 7 to 10 basal rows of close set vertical striae.

D. V - I, 9, I, first spine  $2\frac{1}{4}$  to  $2\frac{1}{3}$  in total head length, first



dorsal ray  $2\frac{1}{4}$  to  $2\frac{1}{3}$ ; A.I, 10, first  
ray  $2\frac{1}{4}$  to  $2\frac{2}{5}$ ; caudal  $1\frac{1}{3}$  to  $1\frac{3}{4}$ ,  
emarginate; pectoral  $1\frac{2}{3}$  to  $1\frac{4}{5}$ ;  
ventral  $2\frac{1}{5}$  to  $2\frac{1}{3}$ ; least depth  
of caudal peduncle  $3\frac{1}{2}$  to  $3\frac{3}{4}$ .

Pale brownish, scales on back  
with finely dusky edges. Side  
with silvery white band wide  
as pupil. Fins pale brown.



2107

A slender trim species with  
the vent. 3 or even 4 scales behind  
depressed ventral with age.  
In young vent may even be  
shortly before depressed  
ventral tip.



2108

The following is condensed from  
Atherina argyrotaeniata Bleeker:

Depth  $6\frac{1}{2}$ , body cylindrical;  
head  $4\frac{1}{2}$ . Eye  $2\frac{1}{2}$  in head; mouth  
oblique. Scales large.

D. VI — I, 9 or 10; A. I, 10; second  
dorsal and anal with emarginate  
edges; pectoral  $5\frac{1}{2}$  in body, rays  
I, 14; ventral rays I, 5.

Back greenish, below pink  
silvery. Silver lateral band,  
with blue edge above. Fins  
clear. Irish gray above. Length  
not given.

The following is also condensed  
from Klemminger's account and  
figure of Atherina gobio:



2109

Depth 6; head  $4\frac{1}{2}$ . Snout  $2\frac{3}{4}$  in head; eye 4,  $1\frac{2}{5}$  in snout; maxillary reaches  $\frac{3}{4}$  to orbit, length  $2\frac{3}{4}$  in head; no palatine teeth; interorbital apparently level.

Scales 42 to 45 in lateral series; 6 transversely; 19 predorsal forward to head.

D. VI - I, 9, first dorsal spine  $2\frac{3}{4}$  in head, about 1 scale behind vent; first dorsal ray  $2\frac{3}{4}$ ; A. I, 12, first ray  $2\frac{3}{4}$ ; caudal 1, deeply forked; least depth of caudal peduncle  $3\frac{1}{8}$ ; pectoral  $1\frac{1}{8}$ , rays 17; ventral 2 in head; vent 3 scales behind depressed ventral tip.

Back with blackish brown spot at base of each scale and blue white dots. Belly white with bluish reflections. Silvery lateral band, edged blue above. Iris with dusky. Blackish blotch



2110

on pectoral before tip. Length 100 mm.  
(Klunzinger)

~~Red Sea.~~

Jordan and Richardson have described Atherina paratela:

Depth  $6\frac{4}{5}$ ; head  $4\frac{1}{4}$ , width  $1\frac{7}{8}$ .  
Snout  $3\frac{3}{4}$  in head; eye  $3\frac{1}{10}$ ,  
greater than snout or interorbital;  
maxillary reaches eye; interorbital  
flat; upper teeth minute, in  
imperfect band, irregular outer  
row little enlarged, lower  
obsolete.

Scales 36 in lateral series;  
19 predorsal. Scale edges entire.

D. VI - I, 9, second spine  $2\frac{1}{3}$   
in total head, first branched  
ray  $2\frac{1}{4}$ ; A. I, 11, first branched  
ray 3; caudal I?, forked; least  
depth of caudal peduncle  $4\frac{1}{8}$ ;  
pectoral  $1\frac{1}{3}$ ; ventral 2.



Scales 32 or 33 in lateral line to caudal base and 2 or 3 more on latter; 7 above, 4 below to ventral, 4 or 5 below to anal origin; 14 or 15 predorsal. Lateral line complete, axial, tubes simple. Head largely covered with parallel vertical striae, few horizontal before eye. Scales with 11 to 14 apical radiating striae, each more or less finely waved; 4 to 9 straighter radiating basally circuli fine.

D. IV, 8, I, third simple ray as robust spine, its front edge entire, hind edge with 20 to 23 rather large, long, antorse denticles, spine length  $1\frac{1}{8}$  to 1 in head; A. III, 5, I, first branched ray  $1\frac{3}{4}$  to 2; least depth of caudal peduncle  $2\frac{1}{4}$  to  $2\frac{1}{2}$ ;



2111  
Dark straw color. Scales of  
back and sides with dark dots,  
few dark edges or submarginal  
dark lines. Blackish or  
silvery lateral band wide as  
scale. Belly pale. Top of nose,  
interorbital and opercles  
blackish. Length 100 mm.



15693. Alimango Bay, Burias Island. March 5, 1909. Length 67 mm.

Five examples. Atulayan Bay, Atulayan Island, Luzon. June 17, 1909. Length 44 to 69 mm.

Three examples. <sup>Bagacay Bay,</sup> Esparada Island, Morongos. March 12, 1909. Length 38 to 63 mm.

Two examples. Balambran, Cebu. April 2, 1908. Length 43 to 48 mm.

Three examples. Baliksias Bay, Lubang. July 14, 1909. Length 65 to 68 mm.

Nine examples. Batan Island tide pools. June 5, 1909. Length 38 to 78 mm.

<sup>Two</sup> ~~Three~~ examples. Biri Channel, June 2, 1909. Length 57 to 64 mm.

Four examples. Bolalo Bay, Palawan. December 20, 1908. Length 52 to 80 mm.

Three examples. Bolalo Bay. December 21, 1908. Length 62 to 78 mm.



Scales 40 in lateral series from gill opening to caudal base and 3 more on latter; 10 scales above anal origin to middle of back; 5-6 scales over predorsal to snout tip. Caudal base scaly. Lateral line low, incomplete, distinct only to ventral origin. Scales with 5 short marginal radiating striae and 2 or 3 imperfect auxiliaries; circuli concentric, 10 apical, 16 to 18 basal.

D. III, 6, second branched ray  $1\frac{1}{2}$  to 2 in head from snout tip; A. III, 11, I, first branched ray 2 to  $2\frac{1}{8}$ ; least depth of caudal peduncle  $3\frac{1}{4}$  to  $4\frac{1}{2}$ ; pectoral  $1\frac{1}{5}$  to  $1\frac{1}{5}$ , rays I, 9; ventral rays I, 5, fin  $2\frac{1}{5}$  to  $2\frac{1}{2}$  in head from snout tip; caudal  $4\frac{1}{8}$  to  $4\frac{3}{5}$  in rest of fish to snout tip.



28 examples. Bolinao Bay.

May 9, 1909. Length 28 to 60 mm.

6117. Bolinao Bay. May 10, 1909.  
Length 43 to 72 mm. Three examples.

Fourteen examples. Bongao  
Anchorage, Sulu Archipelago.  
February 22, 1908. Length 60 to 122 mm.

116 examples. Bulan Island,  
Samarco Group, south of Zamboanga.  
September 13, 1909. Length 17 to 62 mm.

135 examples. Busuñ Harbor,  
Burias Island. April 22, 1908. Length  
17 to 78 mm.

7091. Busuñ Harbor. March 8, 1909.  
Length 71 to 79 mm. Two examples.

Three examples. Butuanan Island,  
Luzon. June 12, 1909. Length 46 to 56  
mm.

One example. Cagayan de Jolo,  
Jolo Sea. January 8, 1909. Length 43 mm.

nine examples. Canimo Island near  
Daet. June 15, 1909. Length 26 to 32 mm.



2114  
58 examples. Canmahala Bay,  
Ragay Gulf, Luzon. March 11, 1909.  
Length 21 to 60 mm.

15085. Capulaan Bay, Pagbilao  
Island. February 24, 1909. Length  
90 mm.

Twelve examples. Caracaran  
Island. June 8, 1909. Length 43 to 69 mm.

Eight examples. Catangan Bay,  
Masbate. April 18, 1908. Length 63  
to 70 mm. Eaten by Cirolana orientalis  
Dana, very ravenous, first devouring  
eyes, then gills, then working into  
body cavity, all of this done in ten  
minutes.

One example. Cebu market. August  
26, 1909. Length 58 mm.

One example. Endeavour Strait,  
Palawan. December 23, 1908. Length  
60 mm.

One example. Galera Bay, Mindoro.  
June 4, 1908. Length 55 mm.

Twelve examples. Galera Bay. June 9, 1908.  
Length 92 to 110 mm.



23 examples. Gujilugan, Negros.  
April 2, 1908. Length 30 to 50 mm.

83 examples. Jolo. February 7, 1908.  
Length 45 to 94 mm.

138 examples. Jolo. February 8,  
1908. Length 30 to 80 mm. Some  
examples with 3 rows of black  
dots laterally below. Vent usually  
opposite first dorsal origin, often  
several scales before.

Eight examples. Jolo Anchorage.  
March 5, 1908. Length 37 to 70 mm.

7742, 7743. Jolo market.  
February 12, 1908. Length 78 to 87 mm.

Three examples. Jolo. September  
16, 1909. Length 32 to 43 mm.

Eighteen examples. Lampiran  
Island. September 11, 1909. Length 20  
to 39 mm.

Eight examples. Looe, Lubang  
Island. July 18, 1908. Length 32  
to 80 mm.



One example. Lucena Anchorage,  
Tayabas. February 24, 1909. Length  
49 mm. Snout broadly depressed.  
Mouth very small, very narrow.  
Eyes very large, facing below.  
An unusual pronounced variant,  
extreme in the above characters.

Four examples. Maculabo Island.  
June 13, 1909. Length 65 to 93 mm.

7869. Maculabo Island. June  
14, 1909. Length 70 mm.

Ten examples. Malcochin Harbor,  
Linapacan Island. December 19, 1908.  
Length 42 to 65 mm.

Thirteen examples. Mansalay,  
Mindoro. June 3, 1908. Length 28 to 57  
mm.

16404.  
34 examples. Mansalay. June 4, 1908.  
Length 48 to 90 mm.

20861. Mantacao Island, west coast  
of Bohol. April 8, 1908. Length 31 to  
73 mm. Two examples.



Three examples. Maribojoc Bay, <sup>2117</sup>  
Maribojoc, Bohol. May 26, 1909.  
Length 73 to 75 mm.

26 examples. Maricaban Port,  
off southern Luzon. July 20, 1908.  
Length 18 to 90 mm.

Three examples. Masabat Bay,  
Dinualasag Island. June 11, 1909.  
Length 41 to 77 mm.

24 examples. Masbate Island.  
April 20, 1908. Length 28 to 85 mm.

62 examples. Matnog Bay,  
Luzon. May 31, 1909. Length 27 to 54 mm.

One example. Mampog Island.  
March 3, 1909. Length <sup>33 to</sup> 34 mm.

Five examples. Murcielagos Bay.  
August 20, 1909. Length 35 to 68 mm.

One example. Nasugbu Bay  
anchorage. January 21, 1908. Length  
76 mm.

Three examples. Nogas Point, Panay.  
February 4, 1908. Length 31 to 48 mm.



2118  
One example. Olongapo Anchorage,  
Luzon. January 7, 1908. Length 87 mm.

Two examples. Panabutan Bay.  
February 5, 1908. Length 22 to 27 mm.

Twelve examples. Pandanon Island.  
March 23, 1909. Length 49 to 78 mm.

57 examples. Pandanon Island.  
March 24, 1909. Length 28 to 73 mm.

Five examples. Pilas Island.  
September 12, 1909. Length 46 to 83 mm.

Seven examples. Port Bais  
anchorage, Tanon Strait, east coast  
Negros. March 31, 1908. Length 54 to 90  
mm.

21629. Port Banalacan, Marinduque.  
February 23, 1909. Length 63 mm.

One example. Port Binanga, Luzon.  
January 8, 1908. Length 33 mm.

One example. Port Binanga. January  
9, 1908. Length 61 mm.

Six examples. Port Galera, Mindoro.  
June 8, 1908. Length 37 to 60 mm.



2119

99 examples. Port Galera. June 9,  
1908. Length 28 to 100 mm.

Seven examples. Port Jamelo, Luzon.  
July 13, 1908. Length 30 to 73 mm.

20148, 20149. Port Matalvi,  
Luzon. November 22, 1908. Length  
59 to 77 mm. Five examples.

Sixteen examples. Port Matalvi.  
November 23, 1908. Length 38 to 60 mm.

Seven examples. Port San Pio  
Dunto, Camiguin Island. November  
11, 1908. Length 36 to 66 mm.

25 examples. Port Usan west of  
Pinas Island. December 17, 1908.  
Length 41 to 87 mm.

16405. Rasa Island, Mantaguin Bay,  
Palawan. April 1, 1909. Length 78 mm.

Six examples. Rasa Island Anchorage.  
June 18, 1909. Length 43 to 58 mm.

→ Sixteen examples. Romblon.  
March 25, 1908. Length 24 to 38 mm.



2119  
99 examples. Port Galera. June 9,  
1908. Length 28 to 100 mm.

Seven examples. Port Jamelo, Luzon.  
July 13, 1908. Length 30 to 73 mm.

20148, 20149. Port Matalvi,  
Luzon. November 22, 1908. Length  
59 to 77 mm. Five examples.

Sixteen examples. Port Matalvi.  
November 23, 1908. Length 38 to 60 mm.

Seven examples. Port San Pio  
Dunto, Camiguin Island. November  
11, 1908. Length 36 to 66 mm.

25 examples. Port Usan west of  
Pinas Island. December 17, 1908.  
Length 41 to 87 mm.

Three examples. Ragay Bay, Ragay  
Gulf, Luzon. March 9, 1909. Length  
48 to 61 mm.

One example. Ragay Bay. March  
10, 1909. Length 46 mm.

→ Sixteen examples. Romblon.  
March 25, 1908. Length 24 to 38 mm.



becoming broader anteriorly. Anal like  
dorsal, blackish posterior part more  
pronounced. Caudal with obscure white



2120

Four examples. Romblon. March  
26, 1908. Length 43 to 67 mm.

Four examples. Sablayan Bay,  
Mindoro. December 12, 1908. Length  
39 to 51 mm.

Four examples. Sacol Island,  
east of Zamboanga. September 8, 1909.  
Length 32 to 39 mm.

8067. Sacol Island. September 9,  
1909. Length 85 mm.

154 examples. San Miguel Harbor,  
Ticao Island. April 21, 1908. Length  
31 to 110 mm.

26 examples. Santa Cruz Island,  
Marinduque. April 23, 1908. Length  
19 to 67 mm.

D.5573. Simalue Island (N.), S.  
60° <sup>0.4</sup> ~~13~~ <sup>00</sup> ~~13~~ miles (lat. <sup>28</sup> <sup>30</sup> ~~28~~ <sup>30</sup> N., long. 120°  
~~13~~ <sup>00</sup> ~~13~~ F.), north of Tawi Tawi.  
September 23, 1909. Length 30 mm.

12607. Sitanki wharf, Sulu  
Archipelago. February 26, 1908.  
Length 74 mm.



Two examples. Sulade Island. <sup>2121</sup>  
September 17, 1909. Length 52 to 58 mm.

Six examples. Surigao, Mindanao.  
May 8, 1908. Length 71 to 86 mm.

One example. Tara Island  
anchorage. December 14, 1908. Length  
53 mm.

28 examples. Tataan, Simulae  
Island, Sulu Archipelago. February  
19, 1908. Length 55 to 95 mm.

39 examples. Tataan anchorage.  
February 21, 1908. Length 29 to 77 mm.

21 examples. Tataan Passage.  
February 20, 1908. Length 44 to 83 mm.

10463. Tilig, Lubang Island.  
July 14, 1908. Length 76 mm.

Four examples. Togian Bay,  
Togian Island. November 19, 1909.  
Length 50 to 73 mm.

35 examples. Tomahu Island.  
December 11, 1909. Length 32 to 85 mm.



20738, 20739. Tonguil Island,  
east of Gumila Reef, south of  
Zamboanga. September 14, 1909.  
Length 78 to 80 mm.

Eleven examples. Tumindao Reef,  
Sulu Archipelago. February 25, 1908.  
Length 70 to 112 mm.

Six examples. Tumindao Reef.  
February 26, 1908. Length 40 to 92 mm.

8680, 8681. Tutu Bay, Jolo  
Island. September 19, 1909.  
Length 90 mm.

157 examples. Varadero Bay,  
Mindoro. July 23, 1908. Length  
67 to 110 mm.

Three examples. Varadero Harbor.  
July 22, 1908. Length 52 to 68 mm.  
20625.

Length 43 mm.



Three examples. Gane Road,  
Gillolo Island. December 1, 1909.  
Length 42 to 81 mm.

Four examples. Limbe Strait,  
Celebes. November 9, 1909. Length 30 to  
39 mm.

21338 to 21340. Pendik Island,  
Butan Strait. December 15, 1909.  
Length 78 to 90 mm.

19342 to 19344. Sandakan Bay,  
Borneo. March 2, 1908. Length 77 to 80  
mm.

One example. Talise Island.  
November 8, 1909. Length 85 mm.

21229. Tidore Island, south of  
Ternate. November 24, 1909. Length 78 mm.

Six examples. Tugian Bay, Tugian  
Island. November 19, 1909. Length 50  
to 67 mm.



Atherina microstoma Günther

Atherina microstoma Günther, Cat.  
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(reference). — Jordan and Hubbs,  
Stanford Public., p. 42, 1919<sup>mem.</sup>  
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 Luzon, Cavite).

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Playfair, Fishes of Zanzibar, 1866, p. 2, pl.



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 (reference). — McCulloch, Mem. Austral.  
 Mus., vol. 5, pt. 1, p. 108, June 29, 1929  
 (reference).



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 Cat. Fishes Brit. Mus., vol. 1, 1895, p. 187  
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Thompson, Ann. South Afr. Mus., vol.  
 6, 1908-10, p. 214 (Durban Museum;  
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<sup>Fishes</sup> 1913, p. 199 (Sanguisiapo, Sulu Archipelago,  
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Ball, Bishop Mus. Bull., no. 26, 1925, p.



2126

Depth  $5\frac{3}{4}$  to 7; head 4 to  $4\frac{1}{3}$ . Snout  $4\frac{1}{2}$  in head; eye 3, greater than snout or interorbital; maxillary reaches  $\frac{4}{5}$  to eye, length 4 in head; mouth small; teeth minute, several rows in jaws anteriorly, none on sides or palatines, well developed patch on vomer, palatines toothless; interorbital nearly level. Gill rakers 15, short, stout, longest less than  $\frac{1}{3}$  of eye.

Scales 38 to 40 in lateral series, 8 transversely, 15 or 15 predorsal forward to nape. Scales large, cycloid, concentrically striated.

D. VII or VIII - 10 or 11, third spine  $2\frac{1}{5}$  in head, first branched ray 2; A. 11 or 12, first branched ray 2; caudal  $1\frac{1}{10}$ , emarginate; least depth of caudal peduncle 4; pectoral  $1\frac{3}{4}$ , rays 13 or 14; ventral rays I, 5, fin 2 in head.



Whitish in formalin with  
broad dark silvery lateral band  
along fourth row of scales. Head  
and back above densely spotted  
with minute olive green dots,  
which also border scales of body  
above lateral band and sometimes  
below. Fins with more or less  
numerous dots scattered on rays.  
Length 63 mm. (Mc Culloch.)

Western Australia?, Tasmania,  
New South Wales, Queensland.



2128

Atherina bleekeri Günther

Atherina bleekeri Günther, Cat. Fish.  
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Wakasaoura, Kumata, Hakata,



9689. Uki, Bouru Island. December 9, 1909. Length 195 mm.

2 examples of Tomahue Island. December 12, 1909. Length 36 to 44 mm.  
12922, 13425, 13426, 13428, 22225.

Buka Island, Gulf of Tomini, Celebes.  
November 20, 1909. Length 70 to 148 mm.

18339. West of Malibagu Point, Celebes.  
November 21, 1909. Length 155 mm.

8712. Una Una Road, Binang Unang  
Island, Gulf of Tomini, Celebes.  
November 17, 1909. Length 152 mm.

13220 to 13222, 21477, 21479. Dowarra  
Island. December 2, 1909. Length 65 to  
169 mm.

9985. Maitara Island. November 26, 1909.  
Length 107 mm.

12470, 13122, 13837. Powati Harbor,  
Makyan Island. November 28, 1909.  
Length 89 to 145 mm.

3 examples. Kayoa Island, between Gillolo  
and Kayoa Islands. November 29, 1909. Length 51 to 80 mm.



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p. 40, 1919 (reference). — Tirant,  
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p. 171, 1929 (Indo China). —  
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S., 1930, p. 107 (Nagasaki; Hong  
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Aquat. Plant. Animals, vol. 1, pl.  
22, fig. 3, 1931.



22309. Tidore Island. November  
29, 1909. Length 68 mm.

2 examples. Tomahu Island. December 12, 1909.  
Length 38 to 45 mm

The following represent the var. zanana.

9956. Doc Can Island, Sulu Sea. January  
7, 1910. Length 125 mm.

19006, 19007, 21902. Tapiantana Island,  
south of Zamboanga. September 13, 1909.  
Length 125 to 132 mm.

6654, 6655, 7924. Tutu Bay, Jolo Island,  
first anchorage. September 19, 1909.  
Length 160 to 183 mm.

6906 and 6907. Danawan and Si Amil  
Islands, vicinity Darvel Bay, Borneo.

September 26, 1909. Length 151 to 165 mm.

17576. Danawan and Si Amil Islands.

September 27, 1909. Length 140 mm.

8944. Inabul Island, off Borneo.

September 29, 1909. Length 114 mm.



Atherina japonica (not Houttuy)  
Bleeker, Verh. Batavia Genoot..  
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 vol. 26, p. 5, pl. (9) fig. 2, 1857  
 (Nagasaki); Act. Soc. Sci. Ind.  
 Néerl., vol. 3, no. 3, p. 6, 1857-58  
 (Japan); Ned. Tijds. Dierk.,  
 vol. 4, p. 142, 1873 (1874) (reference).  
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 Chine, 19<sup>e</sup> note, p. 19, August 25,  
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Atherina valenciennesi (not Bleeker)  
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 Bih.  
 Handl., 1887, <sup>pt. 4,</sup> ho. 4, p. 38 (Nagasaki).



16230. Cape Kait, Libani Bay, Celebes.  
~~December~~ 27, 1909. Length 104 mm.

13644. Una Una Road, Binang.  
 Unang Island, Celebes. November 18, 1909.  
 Length 115 mm.

18331, 18333 to 18336, 18338. West of  
 Malibagu Point, Celebes. November 21, 1909.  
 Length 91 to 129 mm. [SK. 2061.]

9708,  
 22855. Talisse Island, north of Celebes.  
 November 9, 1909. Length 107<sup>to 118</sup> mm.

21491. Gane Road, Gillolo Island.  
 December 1, 1909. Length 112 mm.  
 3 examples. ~~Myiatura Island~~. November 26, 1909. Length 60 to 62 mm.  
 13219. Dowarra Island, Tachente Strait.

December 2, 1909. Length 111 mm.

19788. Gomomo Island, Pitt Passage.  
 December 3, 1909. Length 95 mm.

13545. Makyan Island. November 29, 1909.  
 Length 118 mm.

21548. Tidore Island, south of Ternate.  
 November 25, 1909. Length 100 mm.



Depth  $5\frac{3}{4}$ ; head  $4\frac{1}{2}$ . Snout 4 in head; eye 3; maxillary reaches  $\frac{1}{5}$  in eye, length  $2\frac{3}{4}$  in head; jaws about equal; teeth very small, in bands in jaws and on vomer; interorbital little greater than eye. Lower gill rakers 19, little less than pupil.

Scales 45 in lateral series; 7 transversely, 20 predorsal, interdorsal 8. Scales on head above, behind and below eye, head otherwise naked. Fins scaleless. Scales obtusely denticulated.

D. VI - I, 10, first dorsal origin before second dorsal origin space equal  $1\frac{1}{4}$  in head, soft dorsal origin over first third of anal base; A. I, 13; pectoral reaches slightly past ventral origin; ventral inserted nearer front of anal base



than snout tip by space equal to eye diameter.

Scales of back broadly edged with blackish to dusky. Top of head and snout tip black.

Mandible tip dusky or colorless.

Lateral band silvery, dark above, occupies nearly entire third and upper half of fourth series of scales below median series of back. Dorsals and caudal dusky. Pectoral dusky at base. Ventral and anal colorless. Length 173mm.

(Jordan and Starbuck)

Japan.



2133

Atherina tamarensis Johnston

Atherina tamarensis Johnston, Proc.  
Roy. Soc. Tasmania, 1882 (1883), p.  
122 (type locality, Launceston Bar,  
Tamar River, Tasmania). — Jordan  
and Hubbs, Stanford Public., p.  
43, 1919 (reference). — McCulloch,  
Mem. Austral. Mus., vol. 5, pt. 1,  
p. 108, June 29, 1929 (reference).

Taeniomenbras tamarensis McCulloch  
and Waite, Rec. South Austral.  
Mus., vol. 1, p. 41, 1918.



4481. Guntao Island, Palawan Passage. December 20, 1908. Length 216 mm.

4860. Jolo market. February 12, 1908. Length 303 mm.

18582. Malanipa Island, east of Zamboanga. September 8, 1909. Length 158 mm.

11123 and 11260. Pasacao Island, Ragay Gulf, Luzon. March 9, 1909. Length 130 to 212 mm.

8203 and 8204. Port Busin, Burias Island. March 8, 1909. Length 243 to 283 mm.

11040. Port Maricaban, southern Luzon. July 21, 1908. Length 186 mm.

7343. Tara Island, Mindoro Strait. December 14, 1908. Length 255 mm.

4954. Tawi Tawi Group, Sulu Archipelago. February 21, 1908. Length 325 mm.



Atherina tasmaniensis Macleay,  
Proc. Linn. Soc. New South Wales,  
vol. 9, - August 19, 1884, p. 443  
(Tasmania) (misprint for  
tamarensis).

Atherinichthys cephalotes (not  
Castelnau) Giety, Trans. Roy. Soc.  
South Australia, vol. 33, 1909, p.  
264.



Red Sea, Zanzibar, Mozambique,  
 Natal, Mauritius, Madagascar,  
 India, Ceylon, Andamans, East  
 Indies, Philippines, Melanesia,  
 Micronesia, Polynesia. A handsome  
 species and variable. Cephalopholis  
maculatus Seale and Bean and  
C. boninius Jordan and Richardson  
 are only slight variants.

8132 and 8133. Alibijaban Island,  
 Ragay Gulf, Luzon. March 6, 1909.  
 Length 261 to 356 mm.

13503, 13710, 17708, 17769, 18271. Alimango  
 Bay, Burias Island. March 5, 1909.  
 Length 155 to 225 mm.

8276 and 8281. Canmahala Bay, Luzon.  
 March 11, 1909. Length 275 to 355 mm.

21589. Guineyan Island, east coast  
 Luzon. June 4, 1909. Length 180 mm.



2135

Body somewhat compressed. Eye 3  
in head, slightly longer than snout.  
Mouth cleft oblique. Teeth minute.  
Branchiostegals 7.

Scales 42 in lateral series; 9  
transversely. Scales cycloid.

D. VIII I, 11, first dorsal origin  
in vertical line behind ventral;  
A. I, 10 or 11; pectoral rays 13;  
ventral rays I, 5.

Silvery lateral band, 3. series  
of scales above. Length not  
given. (Johnston.)  
Tasmania.



Atherina presbyteroides Richardson

Atherina presbyteroides Richardson,  
Ann. Mag. Nat. Hist., vol. 11, p. 179,  
March 1843 (type locality, Port  
Arthur, Tasmania). — Günther, Cat.  
Fish. Brit. Mus., vol. 3, p. 397, 1860  
(copied). — Macleay, Proc. Linn. Soc.  
New South Wales, vol. 5, pt. 2, 1881,  
p. 37 (copied). — Fowler, Proc. Acad.  
Nat. Sci. Philadelphia, 1907, p.  
425 (Victoria). — Jordan and Hobbs,  
Stanford Public., p. 43, 1919 (reference).  
— McCulloch, Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 107, June 29, 1929  
(reference).



17268. Tayabas River, Marinduque Island. February 25, 1909. Length 157 mm.

6485 and 6486. <sup>Lubang Island,</sup> Tilig, <sup>vicinity</sup> southern Luzon. July 15, 1908. Length 207 to 277 mm.

A467 and A468. Tubnalutan Island, east of Zamboanga. September 9, 1909. Length 245 to 246 mm.

A570 and 6648. Tutu Bay, Jolo. September 19, 1909. Length 200 to 270 mm.

6635. Paradero Bay, Mindoro. July 23, 1908. Length 300 mm.

5932. Zamboanga market. May 25, 1908. Length 277 mm.

17575. Danawan Island, vicinity Sarwel Bay, Borneo. September 27, 1909. Length 142 mm.



Depth  $6\frac{1}{4}$ ?; head  $4\frac{2}{5}$ , width  $1\frac{7}{8}$ .  
Snout  $3\frac{3}{4}$  in head from snout tip; eye  $2\frac{4}{5}$ , greater than snout or interorbital; maxillary reaches  $\frac{1}{5}$  in eye, length  $2\frac{1}{2}$  in <sup>from snout tip</sup> head; mandible protruding, rami elevated little inside mouth; teeth in narrow bands in jaws, short narrow band across vomer; interorbital  $3\frac{1}{3}$  in head from snout tip, flat. Gill rakers?

Scales 45? in lateral series; 9? transversely. Head and caudal base scaly, otherwise fins naked. Scales cycloid, narrowly exposed.

D. IX - I, I, 10, I, spinous dorsal length  $2\frac{1}{4}$  in total head, first branched ray  $2\frac{1}{4}$ ; A. I, I, 12, I, origin little before soft dorsal origin; least depth of caudal peduncle 4; pectoral  $1\frac{1}{3}$ ; ventral  $1\frac{1}{2}$ ; vent opposite base of last dorsal spine.



Brownish. Silvery band 2 or 3  
scales distant from dorsal ridge  
of back, from shoulder to caudal  
base, rather narrow after rayed  
dorsal and anal and bounded  
by narrow leaden line along  
upper edge. Sides of head and  
iris silvery. Fins pale brown.

~~Length 50 mm. (caudal)~~

Tasmania, Victoria.

A. N. S. P., one example. Victoria.  
Mrs. Agnes F. Kenyon. 1907. Length  
50 mm. (caudal damaged).



2139

Atherina woodwardi Jordan and Starks

Atherina woodwardi Jordan and Starks,  
Proc. U. S. Nat. Mus., vol. 24, p. 200,  
fig. 1, 1901 (type locality, Obinaawa,  
Riu Kiu). — Snyder, Proc. U. S.  
Nat. Mus., vol. 42, p. 495, 1912  
(reference). — Jordan and Hubbs,  
Stanford Public., p. 41, 1919  
(reference).

Atherina pinguis (not Lacépède)  
Ishikawa, Prelim. Cat. Fish. Mus.  
Tokyo, p. 33, 1897 (reference).



Boulenger, mainly in the scale counts, though it should be noted that Fowler's scale - counts, especially that of the scales in a transverse direction, are often considerably greater than those of Boulenger and other authors. These counts are, however, probably not greater than counts which may be made from the materials of "Boulenger and other authors" provided they are counted above the lateral line to the origin of the spinous dorsal and below the lateral line to the origin of the spinous anal, as this is the way they are made in the present work. In this case the matter is simply a method of counting, and one which we have found most satisfactory. The count of the scales in the lateral line is another



Depth  $5\frac{1}{3}$ ; head  $4\frac{1}{4}$ . Snout  $4\frac{3}{4}$  in head from snout tip; eye  $2\frac{2}{3}$ , greater than snout; maxillary reaches  $\frac{1}{8}$  in eye, length  $2\frac{3}{4}$  in head from snout tip; teeth very small, in narrow bands in jaws and on vomer; interorbital nearly level. Gill rakers  $6+16$ , slender,  $\frac{1}{2}$  of eye.

Scales 40 in lateral series; 6 transverse, 15 predorsal, 7 interdorsal. Scales with entire edges.

D. V — I, 10, second spine  $2\frac{2}{5}$  in total head length, first branched ray 2; A. I, 12, first branched ray  $1\frac{7}{8}$ ; caudal  $1\frac{2}{7}$ , emarginate; least depth of caudal peduncle  $3\frac{1}{5}$ ; pectoral  $1\frac{1}{4}$ ; ventral  $1\frac{4}{5}$ .

Probably silvery. Back sparsely covered with coarse brown dots, set more or less in rows. Rather



narrow silvery lateral band,  
bordered with black above and  
nearly confined anteriorly to third  
row of scales below superior  
median series, posterior  $\frac{2}{5}$   
slightly wider, front end not  
exposed over upper pectoral edge.  
Snout tip dusky, with brown  
spots. Opercles silvery. Length  
about 65 mm. (Jordan and Starks.)  
Rui Kun.



2142

Atherina tsurugae Jordan and Starks

Atherina tsurugae Jordan and Starks,  
Proc. U. S. Nat. Mus., vol. 24, p.  
202, fig. 2, 1901 (type locality,  
Nagasaki; Hizen). — Tanaka,  
Fishes of Japan, vol. 9, p. 161, pl.  
42, fig. 166, pl. 43, fig. 169 ( ).  
— Jordan, Tanaka, Snyder, Journ.  
College Sci. Tokyo, vol. 33, p. 112, 1913  
(reference). — Jordan and Hubbs,  
Stanford Public., p. 41, pl. 2, fig. 7,  
1919 (reference). — Schmidt, Bull.  
Acad. Sci. U. R. S. S., 1930, p. 542  
(Okinawa), p. 1138 (Tsuruga).



1927, p. 474 (Natal coast).

Cephalopholis miniatus Fowler,  
Proc. Acad. Nat. Sci. Phila., 1907, p.  
252 (Padan examples). — Jordan  
and Richardson, Bull. Bur. Fisher.,  
vol. 27, 1907 (1908), p. 256 (Calayan).  
— Fowler, Proc. Acad. Nat. Sci. Phila.,  
1925, p. 221 (Natal); Bishop Mus.  
Bull., no. 38, 1927, p. 13 (Fanning Island).

Pomacentrus burdi Lacépède, Hist. Nat.  
Poiss., vol. 4, 1802, pp. 506, 510. Arabia.

Serranus cyanostigma (non Valenciennes  
1828) Valenciennes, Règne Animal Ill.  
Cuvier, 1836, pl. 8, fig. 2.

Perca maculata (Forster) Lichtenstein,  
Descr. Animal., 1844, p. 220. St. Christian  
Island, Waitako. (not Perca maculata  
Linnaeus).

Serranus cyanostigmatoides Bleeker,  
Verh. Batav. Genootsch. (Percoid.), vol. 22,



width  $1\frac{7}{8}$  to  $2\frac{1}{4}$  243

Depth 5 to 6; head  $4\frac{2}{3}$  to  $4\frac{3}{4}$ , snout  $3\frac{1}{4}$  to 4 in head; eye  $2\frac{2}{3}$  to  $2\frac{3}{4}$ , greater than snout or interorbital; maxillary reaches  $\frac{1}{5}$  or  $\frac{1}{4}$  in eye, length  $2\frac{1}{3}$  to 3 in head; teeth in narrow band in each jaw, small patch on vomer, none on palatines; interorbital  $2\frac{1}{2}$  to 3, level. Gill rakers  $7 + 22$ ,  $\frac{1}{3}$  longer than gill filaments or 2 in eye.

Scales 48 or 49 in lateral series to caudal base; 9 or 10 transverse, 22 predorsal forward to head, 1 row on cheek. Each scale with basal knob and close set fine vertical basal striae.

D. IV or VI — I, 9 to 12, first spine  $2\frac{1}{2}$  to  $2\frac{3}{5}$  in head, first branched ray  $2\frac{1}{4}$  to  $2\frac{1}{3}$ ; A. I, 12 to 14, first branched ray  $2\frac{1}{5}$  to  $2\frac{1}{3}$ ; caudal  $1\frac{1}{5}$  to  $1\frac{1}{4}$ , forked; least depth of caudal peduncle  $3\frac{2}{3}$  to  $3\frac{3}{4}$ ; pectoral



$1\frac{1}{3}$  to  $1\frac{2}{5}$ ; ventral  $1\frac{7}{8}$  to  $2\frac{1}{5}$ .

Brownish, paler below, sides and under surface largely silvery white. Back speckled and dotted with dusky or deep brown. Snout and head above dotted with dusky. Iris silvery white. Lead line from shoulder to caudal base medially and below broad silvery white band parallel, nearly wide as eye. Dorsals, caudal and pectoral specked with dusky.

Japan.



A. N. S. P., two examples. Tsuruga,  
Echizen, Japan. Stanford University.  
Length 114 mm.



in

4.

S. 1/2 sec 2

13° 12' N., 105° 50'

East Co

Strait to X1



2146

Atherina mulgoides McCulloch

Atherina mulgoides McCulloch,  
Proc. Roy. Soc. Queensland, vol. 24,  
p. 47, text fig. 1 (on De Vis), August  
29, 1912 (type locality, Cape York).  
— Jordan and Hubbs, Stanford  
Public., p. 44, 1919 (reference). —  
McCulloch and Whitley, Mem.  
Queensland Mus., vol. 8, pt. 2, p. 140,  
July 7, 1925 (reference). — McCulloch,  
Mem. Australian Mus., vol. 5, pt. 1,  
p. 108, June 29, 1929 (<sup>reference</sup> ~~Queensland~~).

Atherinichthys punctatus (not  
Atherina punctata Bennett) De Vis,  
Proc. Linn. Soc. New South Wales, vol. 9,  
pt. 2, p. 869, March 4, 1885 (Cape York).



Cephalopholis sonnerati (Valenciennes).

Serranus sonnerati Valenciennes, Hist. Nat. Poiss., vol. 2, 1828, p. 299. Pondicherry and Ceylon. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 122 (Sumatra and Louisades). — Playfair, Fishes of Zanzibar, 1866, p. 3 (non pl. 3 fig. 1). — Day, Fishes of India, pt. 1, 1875, p. 25, pl. 7, fig. 1 (Madras). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 147 (Palaboen, Java). — Day, Fauna Brit. India, vol. 1, 1889, p. 457, fig. 142 (east coast of Ceylon and Madras). — Boulenger, Proc. Zool. Soc. London, 1889, p. 238 (Muscat). — Fowler, Proc. Acad. Nat. Sci. Phila., 1925, p. 223 (Katal).

Serranus (Epinephelus) sonneratii

Zugmayer, Abhandl. Bayer. Akad. Wiss., vol. 26, pt. 6, 1913, p. 9 (Oman).



Depth  $5\frac{1}{4}$  to  $5\frac{3}{4}$ ; head  $3\frac{4}{5}$  to 4.

Snout  $3\frac{1}{2}$  in head; eye  $2\frac{1}{2}$  to  $2\frac{2}{3}$ , greater than eye, equals or greater than interorbital; maxillary reaches  $\frac{1}{4}$  in eye, length  $2\frac{1}{3}$  in head; teeth minute, slender, acute, apparently biserial above, uniserial below, confined to front and anterior sides of jaws, palate and tongue toothless; interorbital apparently level. Gill rakers long, slender.

Scales 33 or 34 in lateral series; 6 transversely, 10 or 12 predorsal to head, 9 between first spines of two dorsals.

D. V or VI - I, 7 or 8, second spine 2 in head, first branched ray 2; A. I, 9 or 10, first branched ray 2; caudal ?; least depth of caudal peduncle  $2\frac{3}{4}$ ; pectoral  $1\frac{2}{5}$ , rays 12 or 13; ventral rays I, 5, fin  $1\frac{4}{5}$  in head.



Colorless in alcohol. Silver  
lateral band broad. Cheeks and  
opercles silver. Upper parts with  
scattered minute black specks.  
Length 35 mm. (McCulloch.)  
Queensland.



Atherina melanostigma Day

2149

Atherina melanostigma Day, Fishes  
of India, pt. 2, p. 345, 1876 (type  
locality, Madras); Fauna British  
India, Fishes, vol. 2, p. 339, 1889. —  
Jordan and Hubbs, Stanford Public,  
p. 44, 1919 (reference).



1, fig. 1 (Seychelles).

Epinephelus janthinopterus Bleeker,  
Verh. Akad. Wet. Amsterdam, vol. 14,  
no. 2, 1874, p. 40. Macassar, Celebes;  
Atlas Ichth. Ind. Néerl., vol. 7, 1873-76,  
p. 36 (Celebes); vol. 8, 1876-77, pl. (54)  
332, fig. 5.

Serranus leopardus (part) Steindachner,  
Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873,  
p. 4.



width slightly less than length without snout. <sup>(2/50)</sup>

Depth  $5\frac{1}{4}$  in total; head  $4\frac{1}{3}$ ,  
snout 5 in head; eye  $2\frac{1}{2}$ , twice  
snout, equal interorbital; mouth  
cleft very oblique, lower jaw  
broad anteriorly and little shorter  
than upper; maxillary reaches  
below front eye edge; teeth in  
jaws minute, none on vomer or  
palate.

Scales 37 in lateral series; 7  
transversely, 16 predorsal. Scale  
edges little rough.

D. V - I, 10, spines feeble, first  
dorsal origin midway between  
ventral bases and anal, hind  
edge of opercle half way between  
snout and dorsal fin base;  
A. I, 13; caudal rays 17; pectoral  
rays 17; ventral rays I, 5.

Well marked silvery band on  
third row of scales. Many fine  
dots along back, especially on



scale edges and fewer in lower half of body. Dark spot on upper eye edge, another at upper edge of caudal base, which also dark posteriorly. Dark line along scales at anal base. Length 75 mm. (Day.)

India.



6693. Hong Kong market. August  
13, 1908. Length 285 mm. Pink,  
silvery below. Back and upper side  
with numerous pale specks. Fins  
like body.

6806. Kowloon market. September  
18, 1909. Length 210 mm.

86443 U.S. N.M. China. A. de C.  
Sowerby. Length 270 mm.

1 example U.S. N.M. China. A. de C.  
Sowerby. Length 230 mm.

12326 A.N.S.P. Hawaiian Islands.  
Dr. J. K. Townsend. Length 205 mm.

1 example. A.N.S.P. Bombay, India.  
Prof. F. Hallberg. Length 328 mm.



Atherina breviceps Valenciennes

Atherina breviceps Valenciennes,  
Hist. nat. Poiss., vol. 10, p. 445,  
1835 (type locality, Cape of Good Hope).  
— Bleeker, Nat. Tijds. Ned. Indië,  
vol. 21, p. (50, 54) 68, 1860 (Cape of  
Good Hope). — Günther, Cat. Fish.  
Brit. Mus., vol. 3, p. 395, 1860  
(Cape of Good Hope). — Sauvage,  
Hist. nat. Madagascar, Poiss.,  
p. 407, 1891 (reference). — Jordan  
and Hubbs, Stanford Publ., p. 40,  
1919 (reference). — Barnard, Ann.  
South Afric. Mus., vol. 21, pt. 1, p.  
298, June 1925 (Port Nolloth,  
Table Bay, False Bay, East London).



11308, 15241 to 15245, 15247. Near Palag Bay, southern Luzon. June 16, 1909.  
Length 77 to 126 mm.

21562. Filas Island, south of Zamboanga. September 12, 1909. Length 63 mm.

11023. Fort Maricaban, southern Luzon. July 21, 1908. Length 154 mm.

5062 and 5063. Port Matulvi, western Luzon. November 23, 1908. Length 115 to 138 mm.

4613, 14257, 14613. Port Palapag, east Luzon. June 3, 1909. Length 90 to 120 mm.

24179. Rapurapu Island, east Luzon. June 22, 1909. Length 102 mm.

16879. Sablayan, Mindoro. December 12, 1908. Length 126 mm.

6420. Sulade Island, vicinity of Jolo. September 17, 1909. Length 120 mm.

19005, 19232, 19233, 22265. Tapanzana Island, south of Zamboanga. September 13, 1909. Length 107 to 143 mm.



Litherna parvipinnis Valenciennes,  
Hist. nat. Poiss., vol. 10, p. 446,  
1835 (type locality, Cape of Good Hope).  
— Bleeker, Nat. Tijds. Ned. Indië,  
vol. 21, p. 54, 1860 (reference). —  
Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 396, 1860 (copied). — Sauvage,  
Hist. nat. Madagascar, Poiss., p.  
(407) 408, pl. 43, fig. 3, 1891  
(Madagascar). — Jordan and Hubbs,  
Stanford Public., p. 40, 1919  
(reference).



5683 and 7680. Agajo Point,  
Catanduanes Island, east Luzon.

June 10, 1909. Length 111 to 126 mm.

18933. Batan Island, east Luzon.

June 5, 1909. Length 111 mm.

15450. Bolinao Bay, west Luzon.

May 10, 1909. Length 125 mm.

9031. Bongao Anchorage, Sulu  
Archipelago, Tawi Tawi Group. February  
24, 1908. Length 123 mm.

10782. Dalanganem Island, eastern  
Palawan. April 8, 1909. Length 125 mm.

22041 and 22042. Magnas, Lagonoy  
Gulf, Luzon. June 17, 1907. Length 85 to 102 mm.

11377. Maricaban Island, Luzon. January  
20, 1908. Length 129 mm.



2154

Depth  $4\frac{3}{4}$  to  $5\frac{1}{4}$ ; head  $4\frac{1}{4}$  to 5.

Eye 3 to  $3\frac{1}{2}$  in head, subequal to slightly longer than snout, equal interorbital; teeth distinct in jaws and on vomer; interorbital low.

Scales 45 to 49 in lateral series; 10 transversely, 23 to 25 predorsal, 7 to 9 interdorsal. No pits on scales of lateral series.

D. VI or VII - I, 13 or 14, first dorsal begins opposite or slightly before vent, according to latter almost midway between ventral and anal or distinctly nearer ventral; A. I, 16 to 18, origin little before soft dorsal origin; pectoral moderate, nearly median in depth,  $1\frac{1}{2}$  in head; ventral small, scarcely or just reach vent.

Pale silvery, with more or less distinct black specks on



2155

back. Lateral stripe brilliant  
silvery, wide as pupil. Length 110  
mm. (Barnard.)

South Africa.



2156

Atherina dannevigii McCulloch

Atherina dannevigii McCulloch,  
Biol. Res. Endeavour, vol. 1, p. 31,  
pl. 16, fig. 2, December 22, 1911 (type  
locality, Spencer Gulf, South Australia,  
20 fathoms; Oyster Bay, Tasmania).  
— Jordan and Hubbs, Stanford  
Public., p. 43, 1919 (reference). —  
McCulloch, Mem. Austral. Mus., vol.  
5, pt. 1, p. 108, June 29, 1929 (reference).

Atherina hepsetus (not Linnaeus) Günther,  
Ann. Mag. Nat. Hist., ser. 4, vol. 17, p.  
396, 1876.



1075

all more or less finely scaled basally;  
body scales without fine auxiliary  
basal scales. Scales with 6 to 10  
basal radiating striae, 38 to 51  
apical denticles with 4 to 6 transverse  
series and circuli fine. D. IX, 14, I or  
15, I, fourth spine  $2\frac{7}{8}$  to  $3\frac{1}{10}$  in total  
head length, twelfth ray  $2\frac{1}{5}$  to 3;  
A. III, 9, I, second spine  $2\frac{4}{5}$  to 3, third  
ray  $1\frac{9}{10}$  to  $2\frac{2}{5}$ ; caudal  $1\frac{3}{5}$  to  $1\frac{7}{8}$ ,  
convex behind; least depth of caudal  
peduncle  $3\frac{1}{4}$  to  $3\frac{1}{3}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{1}{3}$ ;  
ventral  $1\frac{7}{8}$  to 2.

In alcohol light brown generally,  
finely spotted with darker, appearing  
rather as mottlings and most  
distinct on head. One or 2 dusky



2159

Depth  $6\frac{1}{2}$  to  $7\frac{1}{3}$ ; head 4 to  $4\frac{1}{3}$ . Snout 3 in head from snout tip; eye 3 to  $3\frac{1}{2}$ , subequal to longer than snout, equals interorbital; mouth oblique, gape reaches almost or to orbit; maxillary reaches  $\frac{1}{3}$  in eye; teeth exceedingly minute, in jaws, on vomer and palatines; interorbital flat. Gill rakers 16 below,  $\frac{1}{2}$  eye, slender.

Scales 73 to 75 in lateral series; 24 transverse, 39 predorsal, 3 rows on cheek. Caudal base scaly.

D. VIII or IX - I, 11, fourth spine  $2\frac{1}{5}$  in total head length, second ray 2; A. I, 12 or 13, third ray 3; caudal  $1\frac{1}{3}$ , concave behind; least depth of caudal peduncle  $4\frac{1}{2}$ ; pectoral  $1\frac{1}{3}$ , rays 13 or 14; ventral I, 5, fin 2.



Sandy yellow, each scale of back edged with row of minute brown dots. Silvery lateral band wider than row of scales it covers, uniformly dotted with minute brown specks, defined or not by black line above. Length 85 mm. (McCulloch.)

South Australia.



vol. 20, p. 833, 1870 (Red Sea). —

Day, Fishes of India, pt. 2, p. 344, 1876.

— Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, p. 339, 1876 (Hall Sound, New Guinea).

— Martens, Preuss. Exped. Ost Asien, vol. 1, p. 395, 1876 (Amboina River). — Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, p. 353, 1878 (Port Jackson). — Schmeltz, Cat. Mus. Godeffroy, no. 7, p. 50, 1879 (South Seas). — Kirk, Proc. New Zealand Inst., vol. 12, p. 309, fig., 1880 (Wellington). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 2, p. 38, 1881 (Port Jackson, South Australia). — Klunzinger, Fische Roth. Meer., p. 130, pl. 11, fig. 2, 1884. — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 34, 1884 (South Seas). —



caudal base; 9 scales above  
lateral line, 9 below, about  
24 predorsal forward to snout  
end of which 11 to occiput.

Scales larger on head above.  
Vertical fins all finely scaled.

Scales with 7 or 8 nearly parallel  
marginal striae; circuli  
concentric, fine, little more separated  
or coarser apically.

D. X, 25, I, third spine 2 in  
head, soft fin height  $2\frac{3}{4}$ ; A.  
II, 7, second spine  $2\frac{2}{5}$ , second  
ray  $1\frac{4}{5}$ ; caudal 1, ends in median  
point behind; least depth of  
caudal peduncle  $3\frac{1}{5}$ ; pectoral  
 $1\frac{3}{5}$ , rays I, 15; ventral  $1\frac{1}{2}$ , fin  
I, 5.

Dull gray brown above,  
paler to whitish below. Whole



Day, Fauna British India, vol. 2,  
p. 338, 1889. — Sauvage, Hist.  
Nat. Madagascar, Poiss., p. (407)  
409 (522), 1891 (Madagascar). —  
Hutton, Ich. Fauna New Zealand,  
p. 46, 1904. — Borsieri Ann. Mus.  
Civ. Stor. Nat. Genova, ser. 3, vol.  
1, p. 213, 1904 (Massana). —  
Waite, Rec. Canterbury Mus., vol. 1,  
No. 4, p. 318, December 28, 1912  
(reference). — Ogilby, Mem.  
Queensland Mus., p. 38, pl. 12,  
fig. 1, November 12, 1912 (Moreton  
Bay). — Weber, Siboga Exped.,  
vol. 57, Fische, p. 135, 1913 (Flores;  
Ambon). — Beaufort, Bijdr. Dierk.  
Amsterdam, vol. 19, p. 105, 1913  
(Laonek, Waigiu). — Pellegrin,  
Bull. Soc. Zool. France, vol. 39, p.



Synagris tolu (Valenciennes)

Four, 142 to 156 mm., Bangkok.

Sciaenidae

Otolithoides siamensis, new species.

Figure 121.

Depth  $4\frac{1}{4}$ ; head  $3\frac{1}{3}$ , width  $1\frac{3}{4}$ .  
Snout 4 in head; eye  $5\frac{1}{4}$ ,  $1\frac{2}{5}$  in  
snout,  $1\frac{1}{2}$  in interorbital;  
maxillary reaches  $\frac{3}{4}$  in eye, length  
from snout tip  $2\frac{2}{5}$  in head;  
teeth in villiform bands in jaws,  
transversely 3 or 4, uniform;  
interorbital  $3\frac{1}{2}$ , broadly convex;  
bones of head all more or less  
cavernous, covered with soft skin.  
Gill rakers 9 + 16, short,  $\frac{1}{2}$  of  
gill filaments, which  $1\frac{3}{5}$  in eye.

Scales about 56 close along above  
lateral line to caudal base;



223, 1914 (Fort Dauphin, Madagascar)<sup>2162</sup>.  
— Gilchrist and Thompson, Ann.  
Durban Mus., vol. 1, pt. 4, p. 311,  
1917 (reference). — Weber, Zool.  
Med. vol. 6, pt. 1, p. 52,

1921 (  
— Borodin, Bull. Vanderbilt Marine  
Mus., vol. 1, art. 3, p. 76, 1932  
(Surabaya, Java).



distinguished from Campylus  
cinereus by its snout tip, high  
in profile or level with upper  
edge of eye. Other characters  
are the anal lobe but slightly  
longer than the dorsal and  
pectoral fin moderate.

- (Σιποτρώωντος snub-nosed

Leiognathidae

Leiognathus splendens (Cuvier)

Three, 120 to 124 mm., Bangkok

Three, 34 to 49 mm., Silom Canal  
Bangkok.

Leiognathus blochii (Valenciennes)

One, 99 mm., Bangkok; three,  
64 to 68 mm., Sriracha, Inner  
Gulf of Siam.

Chandidae

Ambassis kopsii Bleeker

Three, 72 to 88 mm., Sriracha.



Hepsetia pinguis Jordan and Hubbs,  
 Stanford Public., p. 32, 1919  
 (Suez). — Mc Culloch and Whitley,  
 Mem. Queensland Mus., vol. 8, pt.  
 2, p. , July 7, 1925 (reference).  
 — Barnard, Ann. South Afric.  
 Mus., vol. 21, pt. 1, p. 299, June 1925  
 (Natal; Zululand). — Fowler,  
 Mem. Bishop Mus., vol. 10, p. 120,  
 1928 (compiled). — Mc Culloch,  
 Mem. Austral. Mus., vol. 5, pt. 1,  
 p. 109, June 29, 1929 (reference). —  
Fowler, Mem. Bishop Mus., vol. 11,  
 No. 5, p. 324, 1931 (Port Moresby,  
 New Guinea).



Ambassis wolffii Bleeker.

Two, 76 to 100 mm., Bangkok.

Scales  $42 + 3$ .

Lutjanidae

Lutjanus lineolatus (Rüppell).

Five, 147 to 158 mm., Bangkok.

Pomadasyidae

Caesio cuning (Bloch).

Two, 225 to 253 mm., Bangkok.

Plectorhinchus niger (Cuvier).

Two, 188 to 197 mm., Bangkok.

Plectorhinchus pictus (Thunberg).

One, 211 mm., Bangkok.

Pomadasyx maculatus (Bloch).

One, 150 mm., Bangkok.

Teraponidae

Terapon theraps Cuvier.

One, 160 mm., Bangkok.

Terapon jarbua (Forsk.)

Four, 71 to 94 mm., Sriracha.



2164

Atherina hepsetus (not Linnaeus)  
Forsk., Descript. Animal., p. 69,  
1775 (part).

Atherina affinis Bennett, Proc.  
Conn. Zool. Soc. London, vol. 14, p.  
166, 1831 (March 1932) (type  
locality, Mauritius). — Guichenot,  
Notes Ile Réunion, vol. 2, p. 27, 1862.



short, inconspicuous points,  $\frac{1}{5}$  of  
gill filaments, which  $1\frac{1}{4}$  in eye

Scales very minute, inconspicuous  
Lateral line incomplete or not  
extended beyond dorsal base, well  
arched though not quite parallel  
with dorsal profile of body.

D. VII, 40 or 41, spines low,  
truncate, with point in front  
and behind, inconspicuous,  
seventh ray  $2\frac{2}{5}$  to  $2\frac{3}{5}$  in combined  
head and trunk to caudal base  
A. V or VI, 37 to 39, spines like  
dorsal spines, eighth ray 2 to  $2\frac{3}{5}$   
caudal  $2\frac{1}{3}$  to  $2\frac{4}{5}$ , deeply forked  
lobes slender, sharply pointed  
upper or lower longer; pectorals  
 $2\frac{3}{4}$  to 3, rays 23 or 24; least  
depth of caudal peduncle  $2\frac{2}{3}$   
to 3.



Atherina punctata Bennett, Proc.  
Comm. Zool. Soc. London, p. 184,  
1832 (January 14, 1833) (type  
locality, Mauritius). — Günther,  
Cat. Fish. Brit. Mus., vol. 3, p.  
392, 1860 (reference). — Sauvage,  
Hist. Nat. Madagascar, Poiss.,  
p. 522, 1891 (reference).

Atherina pectoralis Valenciennes,  
Hist. Nat. Poiss., vol. 10, p. 447, 1835  
(type locality, Ile de France;  
Bourbon; Seychelles).



body mauve, becoming pale to  
silvery or milk white on under  
surfaces. Back, lower sides of  
head, breast and front of tail  
 suffused with areas of dusky  
dots. Head above like back,  
sides and below silvery to milk  
white. Muzzle more or less  
translucent. Iris white and  
ray. Caudal with very dilute  
yellowish to ochraceous tints,  
vertical fins otherwise more or  
less with dusky. Pectoral

1049

A 760. Sipadan Island, Sibulo  
Bay vicinity, Borneo. September 28, 1909.  
Length 241 mm.

<sup>and 13035</sup>  
A 882<sup>1</sup> Limbe Strait, vicinity of Strait  
Island, north of Celebes. November 10,  
1909. Length <sup>216 to</sup> 341 mm.  
Pogwiti Harbor,  
1315 3 Makassar Island Molucca Passage.



Atherina lacunosa (not Schneider)  
Valenciennes, Hist. Nat. Poiss., vol.  
10, p. 454, 1835 (Waigiu; New  
Caledonia). — Macleay, Proc. Linn.  
Soc. New South Wales, vol. 1, p. 340,  
1875 (Cape York). — Günther,  
Journ. Mus. Godeffroy, vol. 6, pt.  
11, p. 213, pl. 118, fig. E, 1877 (Vati,  
New Hebrides; New Caledonia;  
Anciteum); Rep. Voy. Challenger,  
vol. 1, pt. 6, p. 36, 1880 (Fiji). —  
Macleay, Proc. Linn. Soc. New  
South Wales, vol. 5, pt. 2, p. 38,  
1881 (Cape York record). — Ogilby,  
Cat. Fish. New South Wales, p. 40,  
1886. — Waite, Rec. Canterbury  
Mus., vol. , no. , p. 21, 1904  
(reference). — Jordan and Seale,  
Bull. Bur. Fisher., vol. 25, p. 216,



verditer green. Fore part of belly greenish white, posterior part purplish white. Dorsal speckled with dull yellow and brown, also caudal and both fins edged with pale orange. Anal greenish at base, dusky terminally, edged white. Pectoral dull yellow, with 5 dusky bars. Ventral white."

Ophicephalus lucius Valenciennes.  
One, 188 mm., Bangkok.

Ophicephalus micropeltes Valenciennes.  
Fifty-seven, 21 to 33 mm., Chiang Mai. "Dull green above. Stripe from eye through tail orange, brightening towards tail. Fore part of belly silvery. Iris bright orange."

Carangidae



2168

Atherinichthys cephalotes Castelnau,  
Proc. Zool. Acclimat. Soc. Victoria,  
vol. 1, p. 137, July 15, 1872 (type  
locality, Hobson's Bay, Victoria).  
— Macleay, Proc. Linn. Soc. New  
South Wales, vol. 5, pt. 2, p. 43,  
1881 (copied). — Sauvage, Hist.  
Nat. Madagascar, Poiss., p. 408,  
1891 (reference).

Atherinichthys picta Castelnau,  
Proc. Zool. Soc. Victoria, vol. 1, p.  
137, July 15, 1872 (type locality,  
Tinnot's Dock, Lower Yarra,  
Victoria). — Macleay, Proc. Linn.  
Soc. New South Wales, vol. 5, pt. 2, p.  
42, 1881 (copied).



Two, 225 to 228 mm., Bangkok.

Caranx balla Valenciennes

Four, 127 to 156 mm., Bangkok.

Selaroides leptolepis (Valenciennes)

Five, 122 to 147 mm., Bangkok.

Atropus atropus (Schneider)

Two, 131 to 143 mm., Bangkok.

### Stromateidae

Pampus cinereus (Bloch)

Two, 172 to 173 mm., Bangkok.

Pampus sinoprotopus, new species.

Figure 118.

Depth  $1\frac{2}{5}$  to  $1\frac{1}{2}$ ; head  $3\frac{1}{8}$  to  $3\frac{1}{2}$ ,  
width  $1\frac{7}{8}$  to 2. Snout  $3\frac{1}{2}$  to  $3\frac{7}{8}$   
in head; eye  $3\frac{7}{8}$  to 4, subequal  
with snout, 2 to  $2\frac{1}{5}$  in interorbital;  
maxillary reaches  $\frac{2}{5}$  to  $\frac{1}{2}$  in eye,  
length <sup>from snout tip</sup>  $2\frac{1}{8}$  to  $2\frac{1}{5}$  in head; teeth  
line, compressed, close set, slender,  
form even narrow cutting edge in  
each jaw; interorbital  $2\frac{1}{3}$  to  $2\frac{2}{5}$ .



2159

Atherina  
Hepsetia pinguis {Lacépède}

Atherina pinguis Lacépède, Hist.  
Nat. Poiss., vol. 5, pp. 371, 373, pl.  
11, fig. 1, 1803 (type locality not  
given [= Mauritius]). — Bleeker,  
Act. Soc. Sci. Ind. Neerl. (Sumatra),  
vol. 8, p. (12) 84, 1859 (Benculen). —  
Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 399, 1861 (Madagascar;  
Anceitum; Sydney; South Australia).  
— Schmeltz, Cat. Mus. Godeffroy,  
~~Cat~~ No. 1, p. 9, 1864 (South Seas); No.  
2, p. 7, 1865 (South Seas); No. 3, p.  
10, 1866 (Samoa). — Steindachner,  
Sitzb. Ber. Akad. Wiss. Wien,  
math.-naturw. Kl., vol. 53, pt. 1, p.  
458, 1866 (Port Jackson). —  
Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 20, 1869 (Samoa; Viti). —  
Klunzinger, Verh. zool. bot. Ges. Wien,  
1 —



dark or dusky dots. Iris white.  
Mandible, lips and under surface  
of snout whitish. Opercle brownish.  
Spinous dorsal largely blackish  
terminally, gray basally. Other  
vertical fins grayish. Pectoral  
dark or dusky brown. Ventral  
whitish.

A. N. S. P., No. 60171. Bangkok  
Siam. March 11, 1933. Length 102  
mm. Type.

Differs from known species  
chiefly in its fewer dorsal rays,  
in the other species of the genus  
27 to 36<sup>and</sup> their scales along above  
lateral 78 to 120. Compared with  
Otolithoides brunneus (Day) that  
species has gill rakers 6 + 11 and  
very slightly less than gill filaments.  
(Named for Siam.)



1905 (1906) (reference). — Waite,  
 Rec. Canterbury Mus., vol. ,  
 p. 15, 1907 (  
 — Jordan and Richardson, Bull.  
 Bur. Fisher., vol. 27, p. 243, 1907  
 (1908) (Iloilo).

Atherinichthys modesta Castelnau,  
 Proc. Zool. Acclimat. Soc. Victoria,  
 vol. 1, p. 136, 1872 (type locality,  
 Hobson's Bay; Lower Yarra, South  
 Australia). — Macleay, Proc. Linn.  
 Soc. New South Wales, vol. 5, pt. 2, p.  
 41, 1881 (copied).



caeruleopunctatus 117, 128

nirfar 127

nirphar 127

Proteracanthus 200

sarissophorus 200

Pseudomyxerus 370

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miles 393

mitsuburii 390

plagiostoma 402

polycladiscus 388

schlegeli 395

undovittatus 369

vogleri 389

Pseudotolithus bleekeri 392



Atherina insularum Jordan and Evermann, Bull. Bur. Fisher., vol. 22, ~~pages~~ p. 170, 1902 (1903) (type locality, Honolulu; Lahaina; Kailua; Hilo). — Jenkins, Bull. Bur. Fisher., vol. 22, p. 437, 1902 (1903) (Lahaina; Honolulu). — Snyder, Bull. Bur. Fisher., vol. 22, p. 523, 1904 (Laysan; Molokai). — Jordan and Evermann, Bull. Bur. Fisher., vol. 23, pt. 1, p. 138, fig. 47, 1903 (1905) (Lahaina; Kailua; Hilo; Honolulu). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 216, 1905 (1906) (reference). — Tanaka, Fishes of Japan, vol. 38, p. 722, pl. 161,



teeth, more or less uniform and usually single conic large tooth forward at middle of upper jaw, inner band of villiform teeth with 3 or 4 transversely, all around jaws; lower teeth anteriorly like upper, posteriorly each side giving rise to inner enlarged series much same as outer enlarged anterior series; no teeth on palate or tongue; interorbital  $3\frac{1}{4}$  to 4 in head from snout tip. Gill rakers  $4 + 12$ ,  $\frac{2}{5}$  of gill filaments, which  $1\frac{1}{4}$  times eye.

Scales 72 to 75 in axial lateral series from suprascapula to caudal base; 29 or 30 transversely above anal base, <sup>45 to 50</sup> predorsal forward opposite nostrils. Scales with 12 to 2 basal radiating striae; single row of 38 or 39 apical denticles; culi fine, only complete basally.



2170

September 1,  
fig. 450, 1927 (Formosa).  
— Borodin, Bull. Vanderbilt  
Marine Mus., vol. 1, art. 2, p. 49,  
1930 (Philippines); vol. 1, art. 3,  
p. 76, 1932 (Noumea, New Caledonia;  
Conway Bay, Indefatigable Island,  
Galapagos).

Hepsetia insularum Jordan and  
Hubbs, Stanford Public., p. 33,  
pl. 1, fig. 3, 1919 (reference). —  
Fowler, Copeia, no. 122, p. 82,  
November 20, 1922 (Hawaiian  
Islands); Bull. Bishop Mus.,  
no. 22, p. 25, 1925 (Honolulu). —  
Fowler and Ball, Bull. Bishop  
Mus., no. 26, p. 10, 1925 (Lisiansky).  
— Fowler, Bull. Bishop Mus.,  
no. 38, p. 8, 1927 (Honolulu); Mem.  
Bishop Mus., vol. 10, p. 119, 1928



greatly smaller eye, smaller  
fins, longer caudal, and entirely  
different coloration. It has  
much the appearance of  
Gigantogobius Fowler, but  
with larger scales and different  
coloration.

(Καλλος beauty or handsome  
+ Eleotris.)

Callielectris platycephalus, new  
species. Figures 123 (head above)  
and 124.

Depth 4 to  $4\frac{7}{8}$ ; head  $2\frac{3}{5}$  to  $2\frac{3}{4}$ ,  
width  $1\frac{1}{4}$  to  $1\frac{3}{5}$ . Snout  $5\frac{1}{5}$  to  $5\frac{1}{2}$   
in head from snout tip; eye  $7\frac{3}{5}$   
to 9,  $1\frac{1}{2}$  to  $1\frac{3}{5}$  in snout,  $2\frac{1}{4}$  to  
 $2\frac{2}{3}$  in interorbital; maxillary  
extends back obliquely opposite  
middle of eye, length  $2\frac{1}{2}$  to  $3\frac{1}{5}$   
in head from snout tip; upper



(type of Atherina insularum;  
Honolulu; Kailua; Hanalei  
River; Waikiki; Koolau Bay,  
Oahu; Laie Stream and beach,  
Oahu; Pearl City; Lisiansky);  
vol. 11, no. 5, p. 324, 1931 (Honolulu).  
— Schmidt, Trans. Pac. Comm.  
Acad. Sci. U. S. S. R., vol. 1, p. 26,  
1930 (Yaezama, Miyako Island).



and ctenoid posteriorly. Head, except muzzle and under surfaces largely scaly, scales little larger on opercles. Cheek and infradorbital region with many vertical parallel series of close set papillae, many radiating from lower eye edge, as short variable bars. Caudal and paired fins finely scaled basally, other fins naked. Two dorsals, spines flexible terminally and rayed fin larger. Anal opposite soft dorsal and smaller. Pectoral moderate. Ventral small. Caudal rather large.

Type Callieotris  
platycephalus, new species.

Greatly like Boroda Herre, but differs in its greatly inclined mouth, which more terminally



Atherina morisi Jordan and Starks,  
Proc. U. S. Nat. Mus., vol. 30, p. 697,  
fig. 3, 1906 (type locality,  
Miyamora, Yakushima). —  
Jordan, Tanaka, Snyder, Journ.  
College Sci. Tokyo, vol. 33, p. 111,  
fig. 84, 1913 (Yakushima).  
Hepsetia morisi Jordan and Hubbs,  
Stanford Public., p. 33, pl. 1, fig. 2,  
1919 (reference).



Caranx 147  
Lagates bipinnulatus 7, 143  
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(Culius) fuscus 392  
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R



2173

Atherina vaigiensis (not Duoy and  
Gaimard) Kendall and Goldsborough,  
Mem. Mus. Comp. Zool., vol. 26, p. 255,  
1911 (Makemo; Guam; Moen).

Hepsetia vaigiensis Fowler, Mem.  
Bishop Mus., vol. 10, p. 126, 1928  
(Moen, Guam, ~~Truck~~, Truck,  
Makemo).



Atherina forsbali (not Rüppell)

Jordan and Starbs, Ann. Carnegie  
Mus., vol. 11, p. 439, 1917 (

— Jordan and Hubbs,  
Ann. Carnegie Mus., vol. 11, p. 462,  
pl. 46, 1917 (

Pranaceus ogilbyi Whitley,

Mem. Queensland Mus., vol. 10,

pt. 1, p. 9, August 28, 1930 (type

locality, Moreton Bay on Atherina  
pinguis Ogilby, not Lacépède I).



Siam. March 12, 1933. Length 110 mm.  
Type.

Only the type known. The  
characters are contained in the  
generic account.

(*Xpilocos* golden.)

Trichopodus trichopterus (Pallas).

Two, 128 to 130 mm., Bangkok;  
forty-four, 24 to 88 mm., Chiang  
Mai; two, 31 to 48 mm., Metang  
River 35 miles north of Chiang Mai;  
four, 71 to 90 mm., Keng Tung.

Trichopodus pectoralis Regan.

Four, 154 to 173 mm., Bangkok.

### Ophicephalidae

Ophicephalus striatus Bloch.<sup>H</sup>

Nineteen, 48 to 258 mm., Chiang  
Mai; six, 100 to 135 mm., Metang  
River 35 miles north of Chiang Mai;  
two, 38 mm., Chantaboon; one, 244



Depth  $4\frac{2}{5}$  to 5; head  $3\frac{2}{3}$  to  $4\frac{1}{8}$ , width  $1\frac{2}{3}$  to  $1\frac{3}{4}$ . Snout  $3\frac{1}{2}$  to  $4\frac{1}{4}$  in head; eye  $2\frac{3}{4}$  to  $2\frac{7}{8}$ , greatly exceeds snout, subequal with interorbital; maxillary reaches  $\frac{1}{5}$  to  $\frac{1}{2}$  in eye, length 2 to  $2\frac{1}{5}$  in head; ramus of mandible low inside mouth; teeth villiform, fine, in narrow bands in jaws, on vomer and palatines; interorbital  $2\frac{3}{5}$  to  $2\frac{7}{8}$  in head, nearly level to slightly concave, depressed medially. Gill rakers  $5 + 19$  or  $20$ , finely lanceolate, subequal with gill filaments, which  $2\frac{1}{8}$  in eye.

Scales  $40$  to  $42$  in median lateral series to caudal base and  $4$  more on latter;  $8$  transversely,  $20$  to  $22$  predorsal of which  $17$  or



Amia notata (Houttuyn)

Sparus notatus Houttuyn, Verh. Holl.  
Maatsch. Wet. Haarlem, vol. 20, pt. 2,  
1782, p. 320. Japan. — Gmelin, Syst.  
Nat. Linn., <sup>vol. 1,</sup> 1789, p. 1272. — Walbaum,  
Arted. Pisc., vol. 3, 1792, p. 303. —

Forster, Fauna Indica, 1795, p. 303.

Apogon notatus Jordan and Snyder,  
Proc. U. S. Nat. Mus., vol. 23, 1901, p. 1904,  
fig. 8 (Nagasaki and Wakanoura). —

Fowler, Proc. Acad. Nat. Sci. Phila., 1906,  
p. 527 (Japan).

Amia notata Jordan and Starck,  
Proc. U. S. Nat. Mus., vol. 30, 1906, p. 698,  
fig. 4 (Yakushima). — Snyder, Proc.  
U. S. Nat. Mus., vol. 42, 1912, p. 412

(Kagoshima and Tanegashima). —

Fowler, Proc. Acad. Nat. Sci. Phila.,  
1927, p. 274 (Philippines).



18 forward to occiput. Scales with 2 or 3 basal points on nearly straight basal edge; 20 to 60 parallel vertical striae basally; apical half of scale entire, ragged.

D. IV or V — I, I, 8, I or I, I, 9, I, third spine  $2\frac{3}{5}$  to  $2\frac{2}{3}$  in head, first branched ray  $1\frac{4}{5}$  to  $2\frac{1}{6}$ ;

A. I, I, 13, I, first branched ray  $1\frac{3}{4}$  to  $2\frac{1}{10}$ ; caudal 1 to  $1\frac{1}{8}$ , deeply forked; least depth of caudal peduncle  $3\frac{1}{3}$  to  $3\frac{2}{3}$ ; pectoral 1 to  $1\frac{1}{4}$ ; ventral  $1\frac{4}{5}$  to  $1\frac{7}{8}$ . Vent at or slightly before tips of depressed ventrals, slightly to well before spinous dorsal origin.

Pale brown to cinnamon or cream color on sides and below, evidently paler in life. Scales



[D. 5245] <sup>1413 and 1413.</sup> Manivaw Island, S.  $41^{\circ}$  E., 4 miles ( $6^{\circ}52'36''$  N.,  $126^{\circ}14'52''$  E.), vicinity Pujada Bay. May 15, 1908. Length 100 to 103 mm. 2 examples.

[D. 5442] San Fernando Point Light, N.  $39^{\circ}$  E., 8.4 miles ( $16^{\circ}30'36''$  N.,  $120^{\circ}11'06''$  E.), west coast Luzon. May 11, 1909. Length 52 to 64 mm. 2 examples.



of head above and on back  
dusted with blackish dots  
marginally. Along side dark  
gray underlaid axial line to  
caudal base, forms along band  
little wider than pupil of  
darker brown than body color.  
Iris silvery gray. Lips with  
dark dots. Fins pale or  
grayish, lower ones more  
whitish.



from its tip dark brown band extends to eye, then back over postocular along median axis to caudal peduncle. Another dark brown band begins on snout above, and extends over eye back along upper side of back till below soft dorsal fin. Round blackish spot, little smaller than pupil, at caudal base medianly. Fins all pale to whitish, except blackish spot marginally at apex of spinous dorsal over at least 2 membranes.

Philippines, China, Japan.



A. N. S. P., one example. Apia,  
Samoa. Dr. Erling Christophersen.  
Bishop Museum. Length 106 mm.

A. N. S. P., three examples. Natal,  
South Africa. H. W. Bell Marley.  
Length 134. to 154 mm.



Lateral line of rather large tubes,  
 each well exposed and with crumpled  
 basal scale; scales with 13 to 15  
 basal radiating striae; 73 to 90 apical  
 denticles, with 3 to 5 transverse series  
 of basal elements; ~~an~~ circuli fine.

D. VII - I, 9, I, fourth spine  $2\frac{1}{3}$  to  $2\frac{2}{3}$   
 in total head length, first ray  $1\frac{2}{3}$   
 to  $1\frac{3}{4}$ ; A. II, 8, I, second spine  $2\frac{3}{4}$  to  
 3, first ray  $1\frac{3}{4}$  to  $1\frac{4}{5}$ ; caudal  $1\frac{1}{5}$  to  
 $1\frac{1}{4}$ , deeply emarginate behind;  
 least depth of caudal peduncle  
 $2\frac{7}{8}$  to  $3\frac{1}{4}$ ; pectoral  $1\frac{2}{5}$  to  $1\frac{3}{5}$ ;  
 ventral  $1\frac{7}{8}$  to 2.

Rather pale brown, inclining to  
 white below with silvery white  
 reflections, especially about head  
 and breast. Iris silvery white,  
 with brown above. On ~~side of~~ snout



2179

Hepsetia afra (Peters)

Atherina afra Peters, Archiv  
Naturges., vol. 1, p. 244, 1855  
(type locality, Mozambique).

— Günther, Cat. Fish. Brit.  
Mus., vol. 3, p. 398, 1861 (copied).

— Sauvage, Hist. Nat. Madagascar,  
Poiss., p. (406) 522, 1891 (reference).

— Barnard, Ann. South Afric.  
Mus., vol. 21, pt. 1, p. 297, June  
1925 (Delagoa Bay, Mozambique  
Coast). — Fowler, Ann. Natal  
Mus., vol. 7, pt. 3, p. 412, 1934  
(Durban Bay).

Hepsetia afra Jordan and Hubbs,  
Stanford Public., p. 34, 1919  
(reference).



Gobiidae

247

Vainosa siamensis, new species.  
Figure 125.

Depth  $4 \frac{3}{5}$ ; head 3, width  $1 \frac{1}{2}$ .  
Snout  $3 \frac{1}{4}$  in head from snout tip; eye  $4 \frac{1}{2}$ ,  $1 \frac{1}{4}$  in snout, much greater than interorbital; maxillary little inclined, reaches opposite hind eye edge, length  $1 \frac{7}{8}$  in head from snout tip; lips broad, fleshy; upper teeth 2 small canines anteriorly, not visible behind fleshy lip until lip pushed back; followed by inner narrow band of fine small teeth; lower teeth moderate, in band in front of mandible, rather large, curved, 3 or 4 transversely; tongue thick, fleshy, truncate; interorbital narrow, depressed, width  $\frac{1}{2}$  of eye. Gill <sup>low</sup> rudiments:



Depth  $5\frac{1}{8}$ ; head 4, width  $1\frac{4}{5}$ .

Snout 4 in head; eye  $2\frac{7}{8}$ , much greater than snout, equals interorbital; maxillary reaches  $\frac{1}{5}$  in eye, slender, length 3 in head; rami of mandible well elevated inside mouth; teeth minute, villiform, in bands in jaws, band of upper jaw exposed when jaws closed and apparently obsolete or absent from vomer and palatines; interorbital  $2\frac{7}{8}$ , level. Gill rakers 7 + 21, lanceolate, equal gill filaments or  $1\frac{4}{5}$  in eye.

Scales 40 in median lateral series to caudal base and 3 more on latter; 7 transversely, 19 predorsal. Median lateral row of scales or 3 rows from dorsal edge each with distinct pore.



Amia nigrocincta Smith and Radcliffe

Amia nigrocincta Smith and Radcliffe,  
Proc. U. S. Nat. Mus., vol. 41, 1912, p. 435,  
pl. 37, fig. 2. Near Jolo (N. Lat.  $6^{\circ}5'50''$   
E. Long.  $121^{\circ}2'15''$ , in 19 fathoms).



Scales with 3 basal points;  
 19 parallel basal striae and  
 terminal half of scale entire.

D. VI - I, 10, I, third spine  
 $2\frac{1}{2}$  in total head length; A.  
I, 15, I, first ray  $2\frac{1}{5}$ ; caudal  
 forked; least depth of caudal  
 peduncle  $2\frac{7}{8}$ ; pectoral  $1\frac{2}{5}$ ;  
 ventral  $1\frac{2}{3}$ .

Pale brown, scarcely lighter  
 below. Each scale on back with  
 submarginal row of blackish  
 dots. Bright silvery white lateral  
 band, sharply defined, from  
 shoulder to caudal base  
 medially and less than eye  
 diameter in width. Iris silvery  
 white, also side of head. Snout  
 dusted with dusky. Fins all  
 pale brown, caudal slightly



edged below by silvery marginal line, also silvery line above on eye. Upper membranes of front dorsal spines dusky. Soft dorsal with brown, narrow, subbasal line. Fins otherwise uniformly pale. Small round black spot at caudal base medially, less than pupil.

Known only from the type, a female with immature eggs.

70246 U. S. N. M. Canimahala Bay,  
Ragay Gulf, Luzon. Length 78 mm.  
Type.



dusky terminally.



on cheek to preopercle ridge;  
 caudal base scaly, other fins  
 scaleless. Lateral line with large  
 tubes, each with large crenulated  
 basal scale. Scales with 14 basal  
 radiating striae, edge scalloped;  
 74 to 76 apical denticles, short,  
 with 2 transverse series of apical  
 denticles; circuli very fine.

D. VII - I, 9, I, fourth spine  $2\frac{1}{3}$  in  
 total head length, first ray  $1\frac{7}{8}$ ;  
 A. II, 8, I, second spine  $3\frac{1}{5}$ , first  
 ray 2; caudal  $1\frac{1}{3}$ , emarginate;  
 least depth of caudal peduncle  
 $2\frac{2}{5}$ ; pectoral  $1\frac{3}{4}$ ; ventral 2.

Light brown, back little more  
 brownish. Sides of head and trunk  
 with brassy reflections. Dark brown  
 bar from snout tip, includes chin,  
 to eye, continued faintly on postocular;



A. h. S. P., one example. Durban  
Bay, Natal. 1931. H. W. Bell  
Harley. Length 61 mm.



Amia diversa Smith and Radcliffe  
Amia diversa Smith and Radcliffe, Proc.  
 U. S. Nat. Mus., vol. 41, 1912, p. 434, pl. 37,  
 fig. 1. Canmehala Bay, Luzon.

Depth  $2\frac{3}{4}$ ; head  $2\frac{1}{2}$ , width  $2\frac{1}{2}$ . Snout  
 $4\frac{1}{2}$  in head from snout tip; eye 3,  
 greater than snout or interorbital;  
 maxillary reaches opposite eye center,  
 expansion  $2\frac{1}{2}$  in eye, length 2 in  
 head from snout tip; teeth in  
 villiform bands in jaws, on vomer  
 and palatines; interorbital 4, nearly  
 level; preopercle ridge and edge serrate,  
 though serrae of ridge less perfect.  
 Gill rakers 7 + 17, lanceolate, little  
 longer than gill filaments or  $2\frac{1}{3}$  in  
 eye.

Scales 25 in lateral line to caudal  
 base and 3 more on latter, 2 scales  
 above, 6 below, 3 predorsal, 2 rows



2184  
Atherina maculipectorale new species

~~Atherina maculipectorale~~



Depth  $2\frac{3}{4}$  to  $2\frac{7}{8}$ ; head  $2\frac{3}{4}$  to 3, width  $2\frac{1}{8}$  to  $2\frac{1}{4}$ . Snout  $3\frac{7}{8}$  to 4 in head from upper jaw tip; eye  $2\frac{2}{3}$  to  $3\frac{1}{4}$ , greater than snout or interorbital; maxillary reaches  $\frac{1}{3}$  in eye, expansion 3 to  $3\frac{1}{2}$  in eye, length  $2\frac{1}{4}$  to  $2\frac{1}{3}$  in head from snout tip; teeth fine, villiform, in broad bands in jaws, narrower ones on vomer and palatines, none on tongue; interorbital  $3\frac{1}{8}$  to  $3\frac{3}{5}$ , broadly convex; lower preorbital and preopercle edges denticulate; and preopercle flange with striae. Gill rakers 9+18, lanceolate, slender, twice long as gill filaments or  $1\frac{3}{4}$  in eye.



2185

Depth  $5\frac{1}{2}$  to  $5\frac{3}{5}$ ; head  $4\frac{1}{4}$  to  $4\frac{3}{5}$ ,  
width  $1\frac{4}{5}$  to  $1\frac{7}{8}$ . Snout  $3\frac{1}{4}$  to 4  
in head from snout tip; eye  $2\frac{3}{4}$   
to  $2\frac{4}{5}$ , -greatly exceeds snout,  
subequal with interorbital;  
maxillary reaches front eye  
edge, length  $2\frac{1}{2}$  to  $2\frac{3}{4}$  in head  
from snout tip; teeth in jaws  
minute, in narrow bands, simple,  
upper exposed somewhat with  
closed jaws; no teeth on palate;  
interorbital  $2\frac{2}{5}$  to  $2\frac{4}{5}$ , low,  
largely level, with concave  
depression anteriorly. Gill rakers  
5 + 23, lanceolate, slender, little  
longer than gill filaments or  
 $2\frac{1}{5}$  in eye.

Scales 40 or 41 in lateral  
series to caudal base and 4 or 5  
more on latter; 7 transversely,  
18 or 19 predorsal forward to



occiput or nearly opposite hind eye edge. Caudal base largely with small scales. Scales with 3 or 4 basal points of which one prominent and enlarged; 40 to 44 parallel basal striae; apical half of scale smooth, edge with irregular scallops.

D. IV - I, I, 8, I, second spine  $2\frac{1}{8}$  to  $2\frac{2}{5}$  in total head length, first branched ray  $1\frac{7}{8}$  to 2; A. I, I, 11, I, first branched ray  $1\frac{3}{4}$  to  $1\frac{4}{5}$ ; caudal 1, deeply forked, lobes pointed, even; least depth of caudal peduncle  $2\frac{3}{4}$  to 3; pectoral  $1\frac{1}{10}$  to  $1\frac{1}{8}$ , rays I, 13; ventral rays I, 5, fin  $1\frac{1}{2}$  to  $1\frac{3}{5}$  in head; vent midway or little advanced in depressed pectoral length.



Light brown generally above, slightly paler below. Lateral silvery gray band, width about  $\frac{3}{4}$  eye diameter. On back each scale with median area sprinkled with dusky dots. Sides of body more or less with silvery white reflections. End of muzzle brownish. Top of head slate gray. Fins largely pale or lower whitish. Dorsals and caudal with grayish marginally. Pectoral pale, with conspicuous, large, deep brown subbasal blotch above.

Borneo. Known by the black blotch on pectoral subbasally above, vent advanced ~~on~~ midway in depressed ventral, first dorsal origin nearer anal than ventral, mandibular rami elevated and pectoral 6 in total.



26 examples.. Sandakan  
Anchorage, Borneo. February  
29, 1908. Length 70 to 90 mm.

23 examples. Sandakan.  
March 1, 1908. Length 74 to 86 mm.



A. N. S. P., Nos. 59861 to 59877,<sup>211</sup>  
paratypes, same data. Length  
31 to 68 mm. Also 3 from Chiang Mai, 28 to 54 mm;  
one 50 mm. (beak broken) from Mueang River 35<sup>miles</sup> north of Chiang Mai.

Greatly like the East Indian  
Dermogenys pusillus Van Hasselt,  
but that species with the ventral  
origin nearer the caudal base than  
the gill opening.

(named for Siam.)  
8 pt. chel. bold caps

### Holeidae

Brachirus aeneus (H. M. Smith) ①

Series of 37 specimens, 27 to 75  
mm., Chiang Mai. Largest example  
with mutilated regenerated tail.  
When fresh "sandy brown above,  
with round black spots. Below  
purplish flesh color."

### 8 pt. chel. bold caps - Cynoglossidae

Cynoglossus semifasciatus Day ①

Depth  $3\frac{3}{4}$ . Snout  $2\frac{7}{8}$  in head.

head ... lateral line of



2189

Genus Craterocephalus McCulloch

Craterocephalus McCulloch, Proc.  
Roy. Soc. Queensland, vol. 24, 1913,  
p. 48. (Type Craterocephalus  
fluviatilis McCulloch, orthotypic.)

Body elongate, somewhat compressed.  
Mouth very small, oblique, bordered  
by premaxillaries; maxillary  
posterior, not reaching eye;  
premaxillaries very protractile,  
straight. Both jaws with very  
small teeth, none on palate.  
Gill membranes free from isthmus  
and each other. Gill rakers  
very short, thick, pointed, 10  
below. Vertebral 17. Scales  
smooth to somewhat crenulated  
behind, 31 to 39 in lateral series,



The following nominal species is doubtless <sup>2190</sup>  
~~Atherina jacksoniana~~  
a member of the present genus:

Atherina jacksoniana Duoy and Gaimard,  
Voy. Uranie, Zool., p. 333, 1825 (type  
locality, Sydney Harbor, Australia).

— Valenciennes, Hist. nat. Poiss., vol.  
10, p. 461, 1835 (Port Jackson; Tasmania).

— McCulloch, Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 107, June 29, 1929 (reference).  
(Fishes New South Wales, ed. 2, p. 40, 1927 ("not  
been recognised since it was first described").

Atherinichthys jacksoniana Günther, Cat.  
Fish. Brit. Mus., vol. 3, p. 402, 1861

(copied). — Castelnau, Proc. Linn. Soc.  
New South Wales, vol. 3, p. 358, 1878

(Port Jackson). — Macleay, Proc. Linn.  
Soc. New South Wales, vol. 5, pt. 2, p. 41,

1881 (copied). — Sauvage, Hist. nat.  
Madagascar, Poiss., p. 408, 1891 (reference).



interorbital  $6\frac{1}{5}$  to  $6\frac{2}{3}$ , slightly convex; preopercle edge minutely serrated, with few serrae at angle trifle enlarged. Gill rakers  $9+13$ , lanceolate, little longer than gill filaments or  $1\frac{4}{5}$  in eye; 7 upper and 5 lower rudimentary.

Scales 104 to 107 in lateral line to caudal base and 10 to 13 more on latter; tubes 62 to 70 in lateral line to caudal base and 10 to 12 more on latter; 22 or 23 above lateral line, 35 to 38 below, 62 to 68 predorsal forward opposite hind nostril, 33 rows across cheek to preopercle angle; fins all with fine scales over greater portions basally; moderate patch of very small scales over upper half of maxillary. Scales with 4 basal radiating striae;



Chirostoma jacksoniense Waite, Mem.  
New South Wales Natural Club, vol. 2,  
p. 21, 1904.

Craterocephalus jacksonianus Jordan  
and Hubbs, Stanford Public, p. 46,  
1919 (reference).

? Atherina hepsetus (not Linnaeus) McCulloch, Mem. Austral. Mus., vol. 5, pt.  
1, p. 107, June 29, 1929 (Tasmania).



1054

Depth  $2\frac{3}{5}$  to  $2\frac{3}{4}$ ; head  $2\frac{3}{5}$  to  $2\frac{3}{4}$ ,  
width  $1\frac{7}{8}$  to  $2\frac{1}{2}$ . Snout  $3\frac{1}{3}$  to  $3\frac{2}{3}$   
in head from snout tip; eye  $6\frac{1}{8}$  to 7,  
 $1\frac{1}{2}$  to 2 in snout, slightly greater  
than interorbital in young to  $1\frac{1}{8}$  in  
interorbital with age; maxillary  
extends back slightly beyond eye,  
expansion 1 to  $1\frac{1}{8}$  in eye, length 2 to  
 $2\frac{1}{8}$  in head from snout tip; teeth  
in villiform bands in jaws, with  
some inner front upper ones elongated  
and depressible, outer maxillary row  
enlarged and wide set pair of  
upper front canines; lower teeth  
in 3 or 4 series anteriorly, narrowing  
posteriorly to 2 series, also inner  
row longest and hinged and pair  
of front canines closer than upper;  
small band of fine teeth on vomer  
and palatines, none on tongue;



predorsal extend forward till between eyes. Cheek and opercle scaly. Lateral line absent or scales pierced by single pore. First dorsal spines 6 to 8, flexible, inserted well behind ventrals. Second dorsal with spine and ~~8~~<sup>7</sup> to ~~9~~<sup>10</sup> soft rays, anal with weak spine and 8 to 10 soft rays, origin slightly advanced from second dorsal origin. Caudal forked. Pectoral rather high, above middle of body depth. Ventral with slender spine and 5 soft rays.

Fresh waters of Australia and New Guinea.



Perca irrorata Lichtenstein, Descript.  
Animal. Forster, 1844, p. 222. Saint  
Christian, Waitaho.

Serranus melanotaenia Bleeker, Act.  
Noc. Sci. Ind. Néerl. ~~mus.~~ (Amboina),  
vol. 2, 1857, p. 33, Amboina. — Günther,  
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 504  
(copied).

Variola melanotaenia Bleeker, Atlas  
Ichth. Ind. Néerl., vol. 7, 1873-74, pl. (II)  
289, fig. 4.



# Analysis of Species

a.' Anal I, 7 to I, 12.

b.' Scales 25 in lateral series;

A. I, 7.

pauciradiatus.

b.<sup>2</sup> Scales 30 to 39 in lateral series.

c.' Scales 30 in lateral series; anal

9; eye  $3\frac{1}{4}$  in head.

capreoli.

c.<sup>2</sup> Scales 31 to 34 in lateral series.

d.' Eye  $2\frac{1}{2}$  to  $3\frac{1}{2}$  in head.

e.' Anal I, 8 or 9.

f.' Scales without dark spots.

fluviatilis.

f.<sup>2</sup> Scales each marked with dark spot.

stercus-muscarum.

e.<sup>2</sup> Anal I, 10.

g.' Scales 32 to 34 in lateral series.

honorae.

g.<sup>2</sup> Scales 36 to 39 in lateral series.

neohuyse.

d.<sup>2</sup> Eye  $3\frac{3}{4}$  in head; anal I, 6 to 8.

eyresii.



a.<sup>2</sup> Anal I, 16; scales?

2194  
obscurus.



2195

Craterocephalus pauciradiatus (Günther)

Atherina pauciradiata Günther, Cat.  
Fish. Brit. Mus., vol. 3, p. 401, 1861  
(type locality, North West Australia).  
— Macleay, Proc. Linn. Soc. New  
South Wales, vol. 5, pt. 2, p. 39,  
1881 (copied). — Sauvage, Hist.  
Nat. Madagascar, Poiss., p. 406,  
1891 (reference).

Craterocephalus pauciradiatus  
Jordan and Hubbs, Stanford Public,  
p. 46, 1919 (reference). — McCulloch,  
Mem. Austral. Mus., vol. 5, pt. 1,  
p. 110, June 29, 1929 (reference).



bands. Anal pale basally, with  
submarginal blackish slate  
band, edge of fin narrowly  
whitish. Paired fins uniformly  
pale, dusted obscurely with  
minute brownish dots.

A. N. S. P., No. 59774. Chong  
Mai, North Siam. December 30,  
1932. Length 29 mm. Type.

A. N. S. P., Nos. 59772 and 59773,  
paratypes, same locality. December,  
1932. Length 33 to 35 mm.

In Herre's account of the  
Philippine and China Sea species  
this one appears structurally to  
approach Rhinogobius siuensis  
Herre. That species, however,  
is with quite different coloration.

(Named for Chong Mai.)  
Glossogobius gibbus (Buchanan-  
Hamilton)

Three, 144 to 203 mm., Bangkok.



Depth 5 in total; head 4. Eye  $3\frac{2}{3}$  in head, equals snout, much less than interorbital; maxillary reaches below front eye edge; mouth very protractile, oblique, jaws equal anteriorly; minute teeth in jaws.

Scales 25 in lateral line; 6 transverse.

D. ~~V~~ or VI - I, 6, spinous fin above hind half of ventral; A. I, 7; pectoral rays 12.

Silvery band narrow, occupies central half of third series of scales. Length 64 mm. (Günther)

Northwestern Australia.



(2497)

Craterocephalus capreoli Rendahl

Craterocephalus capreoli Rendahl,  
Medd. Zool. Mus. Kristiania,  
nos. 5 & 6, p. 175, fig. 6, September  
8, 1922 (type locality, Roebuck  
Bay, North West Australia). —  
McCulloch, Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 109, June 29, 1929  
(reference).



Serranus flavimarginatus Rüppell,  
 Atlas Reise nördl. Afr.<sup>1828</sup>, Fische, 1828,  
 p. 109. near Mohila. — Günther, Cat.  
 Fishes Brit. Mus., vol. 1, 1859, p. 103  
 (copied).

Variola flavimarginata Bleeker, Atlas  
 Ichth. Ind. Néerl., vol. 7, 1873-76, p. 23  
 (Amboina). — Vnyder, Proc. U. S.  
 Nat. Mus., vol. 42, 1912, p. 492 (Okinawa).

Pseudoserranus louti var. flavimarginata  
Klunzinger, Fische Roth. Meer, 1884, p.  
 7.

Variola louti var. flavimarginata  
Weber, Siboga Exped., vol. 85<sup>Fische</sup>, 1913, p. 198  
 (Banda).

Serranus phaeistomus Swainson, Nat.  
 Hist. Animals<sup>Fishes</sup>, vol. 2, 1839, p. 201 (on  
Serranus louti Rüppell, pl. 26, fig. 2).

Variola longipinna Swainson, Nat. Hist.  
 Animals, Fishes, vol. 2, 1839, p. 202 (on  
Serranus louti Rüppell, pl. 26, fig. 2).



Depth  $5\frac{1}{5}$ ; head  $3\frac{2}{3}$ , width  $1\frac{1}{2}$ . 2198

Snout  $3\frac{2}{3}$  in head from snout tip; eye  $3\frac{1}{4}$ , greater than snout,  $1\frac{1}{5}$  in interorbital; maxillary reaches  $\frac{4}{5}$  to eye, length  $3\frac{1}{4}$  in head from snout tip; interorbital low. Gill rakers 9.

Scales 30 in lateral series; 7 transversely, 13 predorsal.

D. V - 5 to 7, second spine 2 in total head, first branched ray  $1\frac{2}{5}$ ; A. I, 9, first branched ray  $1\frac{3}{4}$ ; caudal 1?, emarginate?; least depth of caudal peduncle  $2\frac{3}{5}$ ; pectoral ?; ventral  $1\frac{9}{10}$ .

Pale yellowish brown, with small scattered darker spots on upper side. Silvery longitudinal band along middle of side. Length 50 mm. (Rendahl.)

North-west Australia.



2199

Craterocephalus fluviatilis McCulloch

Craterocephalus fluviatilis McCulloch,  
Proc. Roy. Soc. Queensland, vol.  
24, p. 49, pl. 1, fig. 1, August 29,  
1912 (type locality, North Yankoo  
Creek, Harrindera; junction of  
Lamoi River and Barwon River,  
and McIntyre, New South Wales).

— Jordan and Hubbs, Stanford  
Public., p. 45, 1919 (reference). —  
Waite, Rec. South Austral. Mus.,  
vol. 2, no. 1, p. 103, April 23, 1921 (reference).  
~~vol. 2, no. 1, p. 103, 1923~~

— McCulloch and Whitley, Mem.  
Queensland Mus., vol. 8, pt. 2, p.  
140, July 7, 1925 (reference). —  
Whitley, Rec. Austral. Mus., vol. 15,  
no. 5, p. 295, April 6, 1927 (Inverell,  
New South Wales, spawning; Ithaca



opposite hind eye edge, anteriorly  
3 or 4 much enlarged forming  
conspicuous area at occiput or  
behind eyes. Muzzle, interorbital  
and chin naked. Breast scaly.  
On tail posteriorly scales much  
larger than on fore part of  
body. Scales with 9 to 11 basal  
radiating striae; circuli fine,  
concentric. Large posterior scales of  
tail with 39 or 40 close set basal  
radiating striae.

D. VI - I, 25, I to I, 27, I, spines  
flexible, second  $1\frac{1}{2}$  to  $1\frac{7}{8}$  in  
head, second dorsal height  $1\frac{1}{2}$  to  
A. 26, I or 27, I, fin height  $1\frac{3}{4}$  to  
 $1\frac{4}{5}$ ; least depth of caudal pedu-  
cle 2 to  $2\frac{1}{3}$ ; pectoral  $1\frac{1}{5}$  to  $1\frac{1}{4}$ , rays  
I, 19; ventral I, 5, fin 1 to  $1\frac{1}{5}$  in  
head; caudal  $2\frac{1}{3}$  to  $3\frac{1}{8}$  in rest  
of fish.



Creek near Brisbane). — McCulloch,  
Mem. Austral. Mus., vol. 15, no. 5,  
~~p. 295~~, April 6, 1927<sup>8</sup>, pt. 2, p.  
140, July 7, 1925 (reference).



eye edge, length  $2\frac{1}{8}$  to  $2\frac{1}{5}$  in head; lips rather narrow, fleshy; teeth uniserial, conic, moderate, in jaws, 5 or 6 anterior upper lightly canine-like and much larger inner pair below behind mandibular symphysis, directed backward; no teeth on palate; tongue large, thick, fleshy; interorbital  $5\frac{1}{4}$  to  $5\frac{3}{5}$  in head, lightly convex, with superciliary swelling each still trifle higher. Gill rakers  $5+8$ , robust, curved, subbranchial larger,  $\frac{1}{2}$  of gill filaments, which equal  $1\frac{1}{2}$  eye diameters.

Scales 60 or 61 in lateral series to caudal base and 6 or 7 more on latter; 18 or transversely above anal origin;



2201

Depth 5; head  $3\frac{2}{3}$  to  $3\frac{3}{4}$ . Snout  $3\frac{2}{5}$  in head; eye 3, greater than snout or interorbital, greater than interorbital with age; maxillary reaches  $\frac{2}{3}$  to eye, length  $3\frac{3}{4}$  in head; teeth minute, uniserial in each jaw; interorbital apparently level.

Scales 31 to 33 in lateral series; 7 to 10 transversely. Caudal base scaly. Scales cycloid, concentrically striated.

D. V to VII — I, 7 or 8, third spine  $2\frac{1}{3}$  in head, first branched ray  $2\frac{1}{5}$ ; A. I, 8 or 9, first branched ray 2; caudal  $1\frac{1}{5}$ , emarginate behind; least depth of caudal peduncle  $3\frac{1}{8}$ ; pectoral  $1\frac{4}{5}$ , rays 12 or 13; ventral rays I, 5, fin  $2\frac{1}{8}$  in head, reach to or not quite to vent.

In formaline whitish, with dark (silvery) band from above



pectoral base to caudal base,  
obscure along side of head on  
side of snout. Upper part of  
head and back with more or less  
numerous minute black specks,  
arranged near edges of scales  
above lateral band. Body below  
with few scattered specks and  
median row on under surface  
of caudal peduncle. Length 61  
mm. (McCulloch.)

Murray River basin in New  
South Wales and Queensland.



Craterocephalus stercus-muscarum  
(Günther)

Atherina stercus-muscarum  
Günther, Ann. Mag. Nat. Hist.,  
ser. 3, vol. 20, p. 64, July 1, 1867  
(type locality, Cape York).

Macleay, Proc. Linn. Soc. New  
South Wales, vol. 5, pt. 2, p. 40,  
1881 (copied), ~~vol. 9, pt. 1, p. 40, 1884~~  
(reference).

Craterocephalus stercus-muscarum  
Jordan and Hubbs, Stanford Public,  
p. 45, 1919 (Eidsvold). — McCulloch  
and Whitley, Mem. Queensland Mus.,  
vol. 8, pt. 2, p. 140, July 7, 1925  
(reference). — McCulloch, Mem.  
Austral. Mus., vol. 5, pt. 1, p. 110,  
June 29, 1929 (reference).



palate or tongue; tongue not distinct  
or little free from floor of mouth;  
interorbital  $\frac{2}{5}$  of eye, low, depressed  
or level. Gill rakers 1 + 4, short  
points about  $\frac{1}{2}$  of gill filaments,  
which nearly  $\frac{1}{3}$  of eye.

Scales 26 or 27 in axial lateral  
series from over gill opening to  
caudal base and 2<sup>or 3</sup> more on  
latter; 8 transversely between  
dorsal and anal origins;  
predorsal naked medially,  
also pectoral base, chest and  
breast. On fins only few small  
scales on caudal base. Scales  
with 15 or 16 slightly radiating  
basal striae; 34 or 35 apical  
denticles, smaller medially;  
circuli fine, basal.

D. VI - I, 8, spines somewhat  
flexible, third spine  $1\frac{7}{8}$  to  $2\frac{1}{5}$  in



Atherinichthys maculatus Macleay,  
Proc. Linn. Soc. New South Wales,  
vol. 8, pt. 2, p. 207, July 17, 1883  
(type locality, Lillesmere Lagoon, <sup>Burdekin, Queensland</sup>);  
vol. 9, <sup>pt. 1,</sup> p. 40, 1884 (reference).

Craterocephalus maculatus McCulloch, Proc. Roy. Soc. Queensland,  
vol. 24, p. 52, pl. 1, fig. 2, August  
29, 1912 (Cairns, Townsville,  
Eidsvold, Burnett River, Brisbane).



Canal, Bangkok. December 14, 1933.  
Length 41 mm. Type.

Differs from known species  
in the combination of its characters,  
especially the broad swollen  
cheeks, large scales, long  
maxillary, protruding mandible,  
dentition and coloration.

(Named for Siam.)

Rhinogobius chiengmaiensis, new  
species. Figure 126.

Depth  $4\frac{7}{8}$  to  $5\frac{1}{5}$ ; head  $2\frac{7}{8}$  to  
 $3\frac{1}{5}$ , width  $1\frac{1}{3}$  to  $1\frac{1}{2}$ . Snout  $3\frac{1}{4}$  to  
 $3\frac{2}{5}$  in head from snout tip; eye  
 $3\frac{4}{5}$  to 4, subequal with snout,  
much greater than interorbital;  
maxillary rather short, reaches  
opposite front eye edge, length  
3 to  $3\frac{1}{2}$  in head from snout tip;  
teeth simple, conic, little curved,



Depth  $4\frac{4}{5}$  to  $5\frac{1}{4}$ ; head  $3\frac{2}{3}$  to  $4\frac{1}{4}$ .  
 Snout  $4\frac{3}{4}$  in head from snout tip;  
 eye  $2\frac{1}{2}$  to  $3\frac{1}{4}$ , - greater than snout,  
 $1$  to  $1\frac{1}{2}$  in interorbital; maxillary  
 reaches  $\frac{3}{4}$  to eye, length  $4\frac{1}{8}$  in  
 head from snout tip; teeth minute,  
 in 3 or 4 rows above, 1 or 2 rows  
 below; interorbital very low.

Scales 32 or 33 in lateral  
 series; 7 transversely.

D. VI to VIII - I, 6 to I, 8, first  
 spine  $\frac{2}{5}$  in total head length,  
 first branched ray  $1\frac{4}{5}$ ; A.  
I, 8 or I, 9, first branched ray  
 $\frac{3}{4}$ ; caudal  $1\frac{1}{10}$ , emarginate  
 behind; least depth of caudal  
 peduncle 3; pectoral  $1\frac{3}{4}$ , rays  
 11 to 13; ventral rays I, 5, fin  
 $1\frac{4}{7}$  in total head.

In alcohol whitish, with  
 dark axial lateral band from  
 side of snout to caudal base.



Upper part of head and  
back more or less densely  
speckled with black. In  
well marked examples each  
scale on side with central  
dark spot. Length 74 mm.

(McCulloch.)

Coastwise streams of Queensland  
north to Cape York.



Schauensee.

10 ht. anal. rays

Cyprinidal

8 ht. no. 21, rays

Rasbora

Rasbora lateristriata (Bleeker)

Two, 43 to 45 mm. (both caudal fins broken off), Ban Thung Luang. ~~January 2, 1934~~ Lateral complete. Dorsal origin nearer caudal base than snout tip, behind ventral origin. Black lateral band present, wider on tail. Dark band down middle of back. Faint bar of dusky dots along anal base.

Rasbora stigmatura, new spec

Figure 5.

Depth 4 to  $4\frac{1}{2}$ ; head  $3\frac{1}{5}$  to  $3\frac{3}{4}$  width  $2\frac{1}{8}$  to  $2\frac{1}{5}$ . Snout  $3\frac{1}{8}$  to 4 in head from snout tip; eye 2



2207

Craterocephalus honoriae (Ogilby)

Atherina honoriae Ogilby, Mem.  
Queensland Mus., vol. 1, p. 42, pl.  
12, pl. 12, fig. 3, November 27, 1912  
(Type locality, Herang Creek,  
Brisbane, Queensland).

Craterocephalus honoriae Jordan  
and Hubbs, Stanford Public.,  
p. 45, 1919 (reference). — McCulloch,  
and Whitley, Mem. Austral.  
Mus., vol. 8, pt. 2, p. 140, July 7,  
1925 (reference). — McCulloch,  
Mem. Austral. Mus., vol. 5, pt. 1,  
p. 110, July 29, 1929 (reference).



blackish cross bars. Pectoral  
ray above, whitish below, Ventrals  
white. On caudal peduncle several  
large blackish gray blotches.

A. N. S. P., No. 60019.  
Bangkok, Siam. March 12, 1933.  
Length 200 mm. Type.

Only the type known. Distinguished  
briefly by its color markings, a  
combination not found in any  
other species.

(For Dr. Edward H. Taylor,  
of Kansas University, in slight  
appreciation of his work on the  
herpetology of the Philippines.)

Boleophthalmus smithi, new species.

Figure 129.

Depth  $7\frac{2}{3}$  to  $8\frac{3}{4}$ ; head 5 to  $5\frac{2}{5}$ ,  
width  $1\frac{3}{4}$  to  $1\frac{7}{8}$ . Snout  $3\frac{2}{5}$  to  $3\frac{1}{2}$   
in head; eye  $5\frac{1}{2}$  to 7,  $1\frac{1}{8}$  to 2 in  
snout, subequal with interorbital;



2208

Depth  $5\frac{4}{5}$ ; head  $4\frac{1}{3}$ , depth about 2. Snout 4 in head from snout tip; eye 3, greater than snout or interorbital; maxillary reaches eye, length 3 in head; interorbital  $1\frac{1}{4}$  to  $1\frac{1}{3}$ , flat. Gill rakers  $5+12$ , rather short, stout,  $\frac{1}{4}$  of eye or little longer than gill filaments.

Scales 32 to 34 in lateral series; 6 transversely, 13 or 14 predorsal, 6 interdorsal, 1 row on cheek.

D. V— I, 7 or 8, second spine  $2\frac{1}{6}$  in head, first branched ray  $1\frac{9}{10}$ ; A. I, 10, first branched ray  $1\frac{7}{8}$ ; caudal 1, forked; least depth of caudal peduncle  $3\frac{1}{8}$ ; pectoral  $1\frac{2}{5}$ , rays 13; ventral  $1\frac{9}{10}$ . Vent close behind base of first dorsal spine.



2209

Clear yellow above, dull below.  
Each scale of median dorsal line  
with 2 or more black spots and  
numerous brown dots, latter  
present on other dorsal scales,  
mostly as diminishing marginal  
band. Broad violet band along  
middle of side from above pectoral  
base to caudal base. All scales  
below band immaculate, except  
along median ventral line,  
which black dotted, Snout  
powdered with brown. Large  
blackish occipital blotch.

Fins immaculate. Length 78 mm.  
(Ogilby.)

Queensland.



Craterocephalus nouhuysi (Weber)

Atherinichthys nouhuysi Weber,  
 Notes Leyden Mus., vol. 32, pt. 4,  
 p. 229, 1910 (type locality, Lorentz  
 River, Southern New Guinea);  
 Nova Guinea, vol. 9, pt. 4, p. 555,  
 fig. 26, 1913 (Vander Sande River;  
 Alkmaar; Beaufort River;  
 Lorentz River). — Regan, Trans.  
 Zool. Soc. London, vol. 20, pt. 6,  
 p. 276, 1914 (Mimiba River,  
 New Guinea).

Craterocephalus nouhuysi  
Jordan and Hubbs, Stanford  
 Public., p. 46, 1919 (reference). —  
Weber and Beaufort, Fishes Indo  
 Austral. Archip., vol. 4, p. 278,  
 fig. 71, 1922 (Lorentz River basin). —



forward to end of snout. Head  
largely covered with minute scales.  
Scales with 29 to 34 radiating  
anterior, half or less often incomplete;  
circuli concentric, complete,  
moderate.

D. VII—26, spines flexible,  
fourth  $\overline{1\frac{2}{5}}$  in head, second fin  
height 2; A. 28, fin height  
 $\frac{2}{3}$ ; least depth of caudal  
peduncle  $2\frac{1}{5}$ ; pectoral  $1\frac{2}{5}$ , rays  
8; ventral I, 5, length  $1\frac{3}{5}$  in  
head; caudal  $4\frac{1}{2}$  in rest of fish.

Gray brown above, sides  
paler, entire under surfaces  
whitish. Head gray to drab  
above, white below. Iris gray.  
Lips all more or less dark gray.  
Obscure dark gray blotches on  
cheek and opercle. Ventrals dull  
gray. Anal whitish. Caudal gray,



Fowler, Mem. Bishop Mus., vol. 10,  
p. 120, 1928 (compiled).



Five, 127 to 166 mm., Bangkok

Boleophthalmus taylori, new species

Figure 128.

Depth  $7\frac{7}{8}$ ; head 6, width 1  
Snout 5 in head; eye 7,  $1\frac{1}{4}$   
snout, greatly exceeds interorbital  
maxillary extends back opposite  
hind eye edge, length 3 in head  
lips rather narrow, fleshy; upper  
row of large, conic, well-spaced  
brownish teeth, lower somewhat  
flaring outward, especially in  
front; no teeth on palate; tongue  
large, fleshy, convex; interorbital  
 $\frac{3}{5}$  of eye, low, little convex.  
Gill rakers 4 + 6, low, slender  
curved denticles, fleshy basally  
3 in gill filaments, which  $1\frac{1}{2}$   
times eye.

Scales 160 in axial lateral series  
to caudal base; 35 transversely



Depth 4 to  $4\frac{1}{3}$ ; head  $3\frac{3}{5}$  to  $4\frac{1}{10}$ .  
 Snout  $2\frac{9}{10}$  in head; eye  $3\frac{1}{2}$ ,  
 $1\frac{1}{4}$  in snout,  $1\frac{1}{2}$  in interorbital;  
~~premaxillary~~ reaches  $\frac{4}{5}$  to eye,  
 length 3 in head; lips somewhat  
 swollen; very fine teeth on inner  
 side of jaws, palate toothless;  
 interorbital low.

Scales 36 to 39 in lateral  
 series; 8 to 10 transversely, 14 to  
 17 predorsal, 1 row on cheek.  
 Opercle scaly.

D. VI or VII — I, 8 or 9, third  
 spine  $2\frac{1}{10}$  in head, first branched  
 ray  $1\frac{4}{5}$ ; A. I, 10, first branched  
 ray  $1\frac{3}{5}$ ; caudal I, emarginate;  
 least depth of caudal peduncle  
 $2\frac{2}{5}$ ; pectoral  $1\frac{2}{5}$ , rays I, 13 to 15;  
 ventral rays I, 5, fin  $1\frac{4}{5}$  in  
 head.

Yellowish brown, paler below.



belly above ventrals.

6 <sup>✓</sup> Pappos, streak; Sargus; with reference to the yellow abdominal band.

<sup>cm<sup>12</sup></sup> Diplodus auriventris (Peters).

Sargus auriventris Peters, Archiv Naturgesch., 1855, p. 243. Mozambique.

<sup>1</sup><sub>m</sub> Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 445 (copied). <sup>1</sup><sub>m</sub> Peters, Monatsber. Akad. Wiss. Berlin, 1876, p. 438 (Mauritius).

<sup>1</sup><sub>m</sub> Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-Naturw. Klasse, vol. 74, pt. 1, 1876, p. 204 (Mauritius).

Diplodus auriventris Barnard, Ann. South African Mus., vol. 21, pt. 2, Oct. 1927, p. 689 (reference).

Depth little over  $2\frac{3}{8}$ ; head  $3\frac{1}{3}$ .

Dorsal profile well convex. Snout steep, convex; eye  $3\frac{2}{5}$  in head; ~~interorbital~~ ~~6~~ 6 front upper incisors with 3 or 4



Silvery lateral band from head  
to caudal. Sometimes dark  
blotch at caudal base. Fins  
hyaline. Length 120 mm.

(Weber and Beaufort.)

Fresh waters of Southern New  
Guinea.



bands, first through eye, second through shoulder, 6 often faint or even absent may cross caudal peduncle. Snout black. Dorsal, anal and ventrals blackish.

Length to 500 mm. (Barnard.)

Mediterranean and Eastern Atlantic to South Africa and Natal. Although Barnard retains Charax cervinus Lowe as distinct following Günther largely on the basis of 12 upper and 8 lower incisors. Günther discussed the conflicting characters set down by Lowe and Valenciennes, which appear largely inaccuracies so that probably the names involved really apply to the Mediterranean species, first noticed by Rafinesque.

Emu 20 Rhabdosargus new subgenus 6

Type. 1 Sargus auriventris Peters.

diagnosis. 1 m

no black blotch on caudal peduncle. narrow golden longitudinal band each side of



2214

Craterocephalus  
Chilatherina eyresii (Steindachner)

Atherinichthys eyresii Steindachner,  
Anz. Akad. Wiss. Wien, <sup>pt. 1,</sup> 88, 1884 ~~1884~~,  
p. 194 (type locality, Probably near  
Lake Eyre);  
1075

Sitzs. Ber. Akad. Wiss. Wien, math.-  
naturw. Kl., vol. 88, pt. 1, p. 1075,  
1884 (type).

Craterocephalus  
~~Chilatherina~~ eyresii Mc Culloch and  
Waite, Rec. South Austral. Mus.,  
vol. 1, <sup>no. 1,</sup> p. 43, fig. 27, <sup>May 24,</sup> 1918 (Strangway's  
Springs; Zietz's material).

— Jordan and Hubbs, Stanford  
Public., p. 45, 1919 (reference). —  
Mc Culloch, Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 109, June 29, 1929  
(reference).



174 to 190 mm. Also example 144 mm. long from Bangkok.

Known by its anteriorly minute scales, enlarged little behind eyes and large scales on the tail, also its coloration.

(For Dr. Hugh M. Smith, in appreciation of his studies on Siamese fishes.)

### Trypauchenidae

Trypauchen vagina Schneider  
Three, 118 to 145 mm., Bangkok.

### Batrachoididae

Coryzichthys gangene (Buchanan-Hamilton)

One, 64 mm., Bangkok. Far more mottled and variegated than shown in Day's figure.



Athenina interioris Giéty, Proc.  
Roy. Soc. South Australia, vol. 33,  
p. 264, December 1909 (no description  
(type locality, Overflow of  
artesian water of Coward and  
Strangways Springs, Central  
Australia)).



pale and under surfaces whitish.  
On middle of back 6 large,  
dark brown, saddle-like blotches,  
each much less than pale  
interspaces. Along middle of side  
series of 4 dark brown blotches,  
each little in advance of dark  
saddle-like blotch on back above.  
Head brown above, with obscure  
diffuse blotches, under surfaces  
paler to whitish. Iris brownish.  
Vertical fins gray brown, first  
dorsal narrowly edged with  
blackish and anal dark gray.  
Pectoral suffused with brown,  
~~more~~ darker basally. Ventrals  
whitish.

A. N. S. P., No. 60020. Bangkok  
~~Siam~~ March 12, 1933. Length  
194 mm. Type.

A. N. S. P., Nos. 60021 to 60022



2216

Depth  $4\frac{3}{5}$ ; head  $3\frac{1}{3}$ . Snout  $3\frac{3}{4}$  in head; eye  $3\frac{3}{4}$ ; maxillary reaches  $\frac{7}{8}$  to eye, length  $3\frac{1}{8}$  in head; teeth uniserial, curved, small, well spaced, palate and tongue toothless; interorbital  $3\frac{1}{5}$  in head, flat. Gill rakers below 11, short, thick.

Scales 31 to 33 in lateral series; 13 or 14 transversely. Scales cycloid, concentrically striated, with basal radiating ridges.

D. V or VI — I, 6 or 7, third spine  $2\frac{2}{5}$  in head, first branched ray 2; A. I, 6 to 8, first branched ray 2; caudal  $1\frac{1}{4}$ , forked; least depth of caudal peduncle  $2\frac{7}{8}$ ; pectoral  $1\frac{7}{8}$ , rays 12 or 13; ventral rays I, 5, length 2 in head.

Pale or bleached, with numerous minute dots on back, bordering



scales laterally. Fins with dark  
dots. Length 54 mm.  
(McCulloch and Waite.)



Craterocephalus esox (Klunzinger)

Atherinichthys esox Klunzinger,  
Archiv Naturges., vol. 38, pt. 1, p.  
34, 1872 (type locality, Port  
Phillip, Victoria); Sitzs. Ber.  
Akad. Wiss. Wien, math.-naturw.  
Kl., vol. 80, pt. 1, p. 394, 1879 (1880)  
(Port Phillip). — Macleay, Proc.  
Linn. Soc. New South Wales, vol.  
9, p. 39, 1884 (copied).

Craterocephalus esox Jordan and  
Hubbs, Stanford Public., p. 46, 1919  
(reference). — McCulloch, Mem.  
Austral. Mus., vol. 5, pt. 1, <sup>p. 40,</sup> June  
29, 1929 (reference).



Epinephelus louti Boulenger, Cat.  
Fishes Brit. Mus., vol. 1, 1895, p. 173  
(Red Sea, Zanzibar, Seychelles,  
Mauritius, Mascarenes, Manado,  
Amboina, Timor, Aneiteum, Samoa,  
Marshall).

Epinephelus (Variola) louti Pellegrin,  
Bull. Soc. Zool. France, vol. 39, 1914, p.  
224 (Nossi-Bé, Madagascar).

Labrus punctulatus Lacépède, Hist. Nat.  
Pois., vol. 3, 1802, pp. 431, 477, pl. 17, fig. 2.  
The Great Ocean [Indo-Pacific].

Serranus punctulatus Valenciennes, Hist.  
Nat. Poiss., vol. 2, 1828, p. 367 (Moluccas,  
Waigiu, Ceylon); vol. 9, 1833, p. 435  
(Mauritius). — Duoy and Saimard,  
Voy. Astrolabe, Zool., vol. 3, 1834, p. 654,  
pl. 3, fig. 2 (New Ireland). — Guichenot,  
Notes Ile Reunion, vol. 2, 1862, p. 23



Body compressed, lanceolate, depth 7; head  $3\frac{3}{4}$ . Snout  $1\frac{1}{2}$  in eye; eye 4 in head, equals interorbital; maxillary reaches below eye; band of small teeth in both jaws anteriorly and on vomer, not on palatines.

Scales 45 in lateral series; 8 transversely.

D. VII—I, 11, median; A. I, 12; caudal forked; pectoral not reaching first dorsal; ventral inserted somewhat before middle of pectoral.

Dark above, silvery below. Broad silver blue lateral band along middle of body. Length 140 mm. (Klunzinger.)

Victoria.



2220

Craterocephalus obscura (Castelnau)

Atherinichthys obscura Castelnau,  
Victor. Offic. Rec. Philadelphia  
Exhib. (Res. Fish. Austral.),  
p. 31, 1875 (type locality, Swan  
River, Western Australia). —  
Macleay, Proc. Linn. Soc. New  
South Wales, vol. 5, pt. 2, p. 43,  
1881 (copied).

Craterocephalus obscurus Jordan  
and Hubbs, Stanford Public.,  
p. 46, 1919 (reference). — McCulloch,  
Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 110, June 29, 1929  
(reference).



$\frac{2}{3}$  to 2; A. I, 7, sixth ray  
 $\frac{3}{4}$  to 2; caudal  $1\frac{1}{8}$  to  $1\frac{1}{5}$ , convex  
behind; least depth of caudal  
peduncle  $2\frac{3}{4}$  to 3; pectoral 3 to  
 $\frac{1}{4}$  in combined head and body  
to caudal base; ventral  $1\frac{1}{4}$  to  
 $\frac{2}{5}$  in total head.

Pale brownish. Along side of  
body 5 large ill-defined dark  
blotches. Head with obscure dark  
reticulations, also extended on  
predorsal. Obscure dark spots on  
cheek, fewer on snout above.  
Iris slate gray. Fins largely  
uniformly pale. Spinous  
dorsal with black spot, nearly  
large as eye, anterior on fin,  
also numerous other smaller  
and lighter dark spots. Soft  
dorsal with 4 rows of dark  
spots, caudal with 5, which



Depth  $8\frac{1}{2}$  in total; body very elongate. Eye large, 3 in head, equals snout; mouth cleft far before front edge of orbit. Scales? D. VII - I, 11, first dorsal inserted little behind ventral bases; A. I, 16; caudal very deeply forked. Color blackish, width of silvery band varies from 1 to 3 series of scales. Length 38 mm. (Macleay.) Swan River, Western Australia.



2222

Genus Atherion Jordan and Starks

Atherion Jordan and Starks, Proc.  
U.S. Nat. Mus., vol. 24, p. 203, 1901.  
(Type Atherion elymus Jordan  
and Starks, monotypic.)

Body slender, compressed, tapers  
backward. Head moderate. Snout  
short. Eye large, little advanced  
from middle. Mouth small,  
oblique, terminal. Maxillary  
short. Teeth evident in jaw,  
whole mouth roof granulated.

Interorbital wide, convex.

Scales rather small, edges entire.  
Head furnished with small,  
tooth like points, maxillary  
anteriorly covered, row over  
superior orbital rim, - over  
interopercle, front part of subopercle  
preorbital and lower preopercle limb.



First dorsal little postmedian.  
Second dorsal begins behind anal  
origin. Anal begins close behind  
first dorsal, longer than second  
dorsal. Caudal forked. Pectoral  
high, moderate. Ventral smaller,  
below posterior part of pectoral.  
Vent near front of anal.

Characterized chiefly by  
the roughened surface of the  
muzzle and front of the head,  
due to minute spines.



Bedotia geayi Pellegrin

Bedotia geayi Pellegrin, Bull. Mus.  
Hist. Nat. Paris, vol. 13, p. 205, 1907  
(type locality,

Bull. Soc. Zool. France, vol. 39, p. 179,  
1914 (

— Boulenger, Cat. Fresh Water Fish.  
Africa, vol. 4, p. 77, 1916 (compiled). —  
Jordan and Hubbs, Review of  
Atherinidae, p. 20, December 18, 1916.  
(reference). — Pellegrin, Mém.  
Acad. Malgache, vol. 14, p. 164, pl. 3,  
fig. 4, 1933 (Madagascar).



2222

Atherion elymus Jordan and Starke

Atherion elymus Jordan and Starke,  
Proc. U. S. Nat. Mus., vol. 24, p.  
203, fig. 3, 1901 (type locality,  
Misaki, Sagami). — Franz,  
Abhandl. Kon. Bayer. Akad. Wiss.,  
vol. 4, Suppl. Band 1, p. 25, 1910  
(Aburatsubo). — Jordan, Tanaka,  
Snyder, Journ. College Sci. Tokyo,  
vol. 33, p. 112, 1913 (reference). —  
Jordan and Hubbs, Stanford Public.,  
p. 29, pl. 1, fig. 1, 1919 (reference). —  
Schmidt, Trans. Pac. Comm.  
Acad. Sci. U. S. S. R., vol. 2, p. 37,  
1931 (Misaki).



Southern Arabia, Portuguese East Africa, Seychelles, Mascarene Islands, East Indies, Philippines, Melanesia, Polynesia. A handsome species which we chiefly define by its color, which light red or orange, sometimes or not with scattered blue dots on the head and front of the back though it never shows the bluish network on the head as in Cephalopholis sonnerati which is also a much larger species. Fowler reported an example of Cephalopholis aurantius from Delagoa Bay, 333 mm. long which shows 123 scales in the lateral line to the caudal base. We still believe it to be that species though Barnard has placed it with C. sonnerati, pointing out that "his description differs from that of."



~~Atherion maccullochii Jordan and  
Hubbs~~

Atherion maccullochii Jordan and  
Hubbs, Stanford Public., p. 30, 1919  
(type locality, Lord Howe Island).



with narrow whitish line close  
to and concurrent with fin  
edge. Pectoral deep golden orange.



2224

~~Atherina villosa Duncker and Mohr~~

Atherina villosa Duncker and Mohr,  
Mitteil. Naturh. Mus. Hamburg,  
vol. 42, p. 135, fig. 10, 1926 (type  
locality, Lu Island, New  
Pommernia; Friedrich Wilhelm  
Harbor, New Guinea). — Fowler,  
Mem. Bishop Mus., vol. 10, p. 119,  
1928 (compiled).



yellow example. The species is doubtless far more variable than Boulenger's account would suggest. Our description from the type of Bodianus indelebilis, a small example obtained at Padang and now in the Academy of Natural Sciences of Philadelphia.



2225

Depth 6; head 4. Snout 4 in head;  
eye 3, greatly exceeds snout;  
maxillary reaches  $\frac{3}{4}$  to eye, length  
 $3\frac{7}{8}$  in head; interorbital wider  
than eye, convex, low.

Scales 43 in lateral series; 7  
transversely, 16 predorsal. Body  
scales with entire edges.

D. V - I, 11, second spine  $3\frac{1}{5}$  in  
head, first branched ray  $2\frac{2}{3}$ ; A.  
I, 16, first branched ray  $2\frac{3}{4}$ ;  
Caudal  $1\frac{1}{5}$ , forked; least depth  
of caudal peduncle; pectoral  $1\frac{2}{5}$ ;  
ventral  $2\frac{2}{5}$ .

Slaty, no silvery apparent except  
trace at opercles. Each scale of back  
with large blackish spot. Top of  
head and snout black. Lateral  
edge of lower jaw black. Black  
lateral stripe on third and part  
of fourth rows of scales, broader  
about middle, contracting at caudal  
peduncle and again widening at  
caudal base. Fins colorless,



except caudal, which slightly dusky. Length 38 mm.

(Jordan and Starks.)

Japan. I can find very little in the descriptions of Atherion maccullochii Jordan and Hubbs and Atherina villosa Duncker and Mohr to distinguish them as distinct species, the former based on material 49 mm long and the latter 40 mm. As the increased scales 47 (44 in latter species) and soft anal rays 15 or 16 (12 to 14 in latter species) seem to represent the essential differences for Atherion maccullochii, they do not appear to me to be beyond the limits of variation. Jordan and Hubbs found 14 anal rays in the type and 2 paratypes of Atherion clypeus, though the figure by Jordan and Starks shows 16.



2227

Genus Iso Jordan and Starbck

Iso Jordan and Starbck, Proc.  
U.S. Nat. Mus., vol. 24, p. 204, 1901.  
(Type Iso flos-maris Jordan  
and Snyder, monotypic.)

Tropidostethus (not Phillippi 1863)  
Ogilby, Proc. Linn. Soc. New South  
Wales, vol. 20, p. 322, 1895 (type  
Tropidostethus rhizophilus  
Ogilby, monotypic.)



3, rays 8; soft anal also ending  
in point. Caudal emarginate,  
angles pointed.

Indo-Pacific.



2228

Body elongate, strongly compressed, tapering posteriorly. Breast compressed to edge, belly with thick sharp fleshy fold of skin, at least in male. Head short, blunt. Snout obtuse. Eye rather small, high, advanced. Mouth small, oblique. Premaxillaries protractile, not movable. Teeth very small in jaws and on palate. Gill membranes separate, free from isthmus. Gill rakers slender. Scales very small, edges smooth. Head and front part of body scaleless. First dorsal little premedian, well before second dorsal, which begins well behind origin of long anal. Caudal forked. Pectoral high. Ventral rather small, below hind part of pectoral. Vent close before anal,



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"They are essentially surf-fishes, coming in with the waves, and being swept up into the gulches and pools on the reefs; they never descend to the bottom, but swim here and there, keeping but a few inches beneath the surface; the pectoral fins are always kept fully expanded, at right angles to the body, and motionless, being utilised in fact solely as balancing media; the caudal fin and pedicle have a distinct downward curvature when the fish is swimming."

(Agilby.)



# Analysis of Species

a.<sup>1</sup> Depth 5.

b.<sup>1</sup> Eye 3 to  $3\frac{1}{3}$  in head; maxillary scarcely reaches eye. flox-maris.

b.<sup>2</sup> Eye  $3\frac{1}{2}$  in head; maxillary reaches eye. rhotophitus.

a.<sup>2</sup> Depth  $3\frac{1}{4}$ ; eye less than 3; maxillary reaches  $\frac{1}{4}$  in eye. natalensis.



Analysis of Species

a. Anal I, 7 to I, 12.

b. Scales 25 in lateral series;  
anal I, 7. pauciradiatus.

b.<sup>2</sup> Scales 30 to 39 in lateral series;  
anal rays 9; eye  $3\frac{1}{4}$  in head.  
capreoli.



Iso flos-maris Jordan and Starb<sup>2231</sup>

Iso flos-maris Jordan and Starb,  
Proc. U. S. Nat. Mus., vol. 24, p.  
205, fig. 4, 1901 (type locality,  
Sagami Province; Idsu).

Jordan, Tanaka, Snyder, Journ.  
College Sci. Tokyo, vol. 33, p. 112,  
1913 (reference).

Jordan and Hubbs, Stanford  
Public., p. 47, 1919 (reference).



in young is caudal rays, with  
4 slender graduated spines in  
front, followed by 10 branched  
rays. Anal with very long base,  
begins below pectoral, base  
of spinous portion  $\frac{2}{5}$  base of  
soft portion. Caudal broad,  
slightly emarginate behind.  
Pectoral inserted below level  
of eye, little longer than head,  
median rays longest. Ventral  
inserted before pectoral, with  
very long simple ray nearly  
equal to length of pectoral fish,  
jointed and with articulations  
smaller terminally, also end  
deeply bifurcate for about  
terminal third. Type

Deschampsia chryseus new species.

This interesting genus is  
apparently <sup>easily</sup> well distinguished  
by its peculiar bifid ventrals.



Depth 5; head  $5\frac{2}{5}$ . Snout  $4\frac{1}{4}$  in head; eye 3 to  $3\frac{1}{3}$ , greater than snout; maxillary scarcely reaches eye, length  $3\frac{2}{5}$  in head; teeth very small in jaws, on vomer and palatines; interorbital little wider than eye. Gill rakers  $4 + 13$ , slender,  $\frac{2}{3}$  in eye.

Scales 59 in lateral series; Head entirely scaleless, variably so on anterior part of body. Scales with entire smooth edges.

D. IV - I, 16, first spine 3 in total head length, first branched ray  $2\frac{7}{8}$ ; A. I, 23, first branched ray  $2\frac{1}{2}$ ; caudal 1, forked; least depth of caudal peduncle 3; pectoral  $1\frac{1}{3}$ ; ventral  $2\frac{1}{4}$ .

Apparently translucent in life, colorless in spirits. Broad lateral blackish and silvery



hind nostril or to eye in young,  
length  $2\frac{4}{5}$  to  $3\frac{1}{10}$  in head; teeth 8  
slender, truncate incisors forward in  
each jaw, other teeth uniserial;  
interorbital  $3\frac{1}{8}$  to  $3\frac{1}{5}$ , broadly convex;  
preopercle entire. Gill rakers  $6+9$ ,  
short points,  $\frac{1}{3}$  of gill filaments, which  
 $1\frac{3}{5}$  in eye.

Scales 56 to 58 in lateral line to  
caudal base and 5 to 8 more on latter;  
8 or 9 above, 15 below, 20 to 23 predorsal;  
5 rows on cheeks to preopercle ridge.  
Scales with 10 to 13 basal radiating  
striae, edge undulate; 64 to 93 apical  
denticles, with 15 or 16 transverse series  
of basal elements; circuli fine.

D. X or XI, 13, I or 14, I, fourth spine  
2 to  $2\frac{3}{4}$  in head, first ray  $2\frac{1}{4}$  to 3;  
A. III, 11, I, second spine  $3\frac{1}{8}$  to  $3\frac{1}{4}$ , first  
ray  $2\frac{2}{5}$  to 3; least depth of caudal



band from pectoral base to caudal base, width near pectoral equals ventrals, growing somewhat broader posteriorly and widest medially, narrowing on caudal peduncle, and again broadening at bases of caudal rays as double spot. Lower jaw dusky. Top of head and snout with black markings. Double row of dots from first dorsal to occiput with sometimes <sup>other</sup> scattering dots. Behind first dorsal broken band of dots, parting to run each side of second dorsal and continuing on caudal peduncle as double row of dots or diffused band. At shoulder dusky spot, ~~more or less dusky~~.



spines 3.

Eastern Atlantic and Mediterranean  
to South Africa.

Puntazzo ~~puntazzo~~ (Cetti) Cass 129

Sparus puntazzo Cetti, Fauna Sardinia,  
1784, p. 28. Sardinia.

Charax puntazzo Günther, Cat. Fishes  
Brit. Mus., vol. 1, 1859, p. 453 (Dalmatia;  
Lanzarote). <sup>1</sup>/<sub>2</sub> Bernard, Ann. South  
African Mus., vol. 21, pt. 2, 1927, p. 709  
(Mossel Bay).

Charax capensis Castelnau, Mém. Poiss.  
Afrique Australe, 1861, p. 19. Cape of Good  
Hope. <sup>1</sup>/<sub>2</sub> Thompson, Marine Biology. Rep.  
South Africa, vol. 4, 1918, p. 9.

Depth 2 to 2 <sup>1</sup>/<sub>5</sub>; head 2 <sup>4</sup>/<sub>5</sub> to 3 <sup>1</sup>/<sub>6</sub>, width  
2 <sup>1</sup>/<sub>8</sub> to 2 <sup>2</sup>/<sub>5</sub>. Snout 2 <sup>1</sup>/<sub>2</sub> <sup>to 3</sup> in head; eye 3  
to 4, 1 <sup>1</sup>/<sub>5</sub> to 1 <sup>3</sup>/<sub>4</sub> in snout, 1 to 1 <sup>1</sup>/<sub>4</sub> in  
interorbital; maxillary reaches opposite



sometimes replaced by scattered dots. Opercles and cheeks more or less dusky. Dark spot at front anal base. Caudal finely marked with transverse zigzag dark bands. Length 65 mm. (Jordan and Starks.)

Japan.



Can 130

721

Genus Puntazzo Bleeker

Puntazzo Bleeker, Arch. Néerland. Sci. Nat. Harlem, vol. 11, 1876, p. 284. Type

Puntazzo annularis Bleeker = Sparus puntazzo Cetti, monotypic. Puntazzo

Bleeker proposed to replace Charax Risso.

Charax (not Gronow 1763 or Scopoli 1777).

Risso, Hist. Nat. Eur. Mérid., vol. 3, 1826,

p. 353. Type Sparus antirostris DeLa-

roche = Sparus puntazzo Cetti, monotypic.

Body rather deep. Jaws and muzzle attenuate, form conspicuous rostrum. Eye moderate. Narrow row of incisors, projecting in front of each jaw, besides single row of small teeth in both jaws. Hind nostril oval. Opercle without spine. Preorbital deeper than eye. Branchiostegals 5. Air bladder simple. Pyloric coeca 7. Scales moderate. Cheeks scaled. Dorsal spines 11, depressible in groove. Anal



2235

Iso rhotophilus (Ogilby)

Tropidostethus rhotophilus

Ogilby, Proc. Linn. Soc. New South  
Wales, vol. 20, p. 323, 1895 (type  
locality, Maroubra Bay, <sup>between Port Jackson and Botany Bay</sup>, New South  
Wales). — Waite, Rec. Austral.  
Mus., vol. 5, p. 234, pl. 25, fig. 1.

Iso rhotophilus Waite, Mem.

New South Wales Nat. Club, vol. 2,

p. 21, 1904. — Jordan and Hubbs,

Stanford Public., p. 47, 1919

(reference). — McCulloch, Mem.

Austral. Mus., vol. 5, pt. 1, p. 110,

June 29, 1929 (reference).



Musculum testudineus (Bloch)  
Eight, 89 to 153 mm., Chantaboon.

Anabantidae

Anabas testudineus (Bloch)

Fifty-two, 44 to 102 mm., Chiang  
Mai; one, 98 mm., Hua Mok.

Betta splendens Regan

Thirty-four, 24 to 54 mm., Chiang  
Mai; one, 33 mm., Metang River  
35 miles north of Chiang Mai.

Betta macrophthalmus Regan

Depth  $3\frac{1}{5}$  to  $3\frac{1}{4}$ . Maxillary reaches  
eye. Scales 28 or 29 + 3 or 4.

D. II, 23. Thirteen, 35 to 72 mm.,  
Chantaboon.

Deschauensecia, new genus

Body strongly compressed, ellipsoid,  
deepest at dorsal origin. Head  
moderate, compressed, lower  
sides flattened and approximated  
below, upper profile concave.



Depth 5 in total; head 5 to  $5\frac{1}{2}$ .

Snout obtuse, convex, less than eye; eye  $3\frac{1}{2}$ , near dorsal profile; mouth cleft oblique, reaches eye; jaws not protractile; teeth uniserial, short curved row on palatines, none on vomer or tongue.

Scales moderate, thin, cycloid, deciduous. Vertebrae  $15 + 29$ .

D. IV - I, 15, spinous dorsal above vent, midway between snout tip and caudal base, soft dorsal begins above first third of anal; A. I, 23; caudal forked, rays 17; pectoral rays 14; ventral rays I, 5.

Gray, faded straw yellow in spirits, closely dotted with brown. Broad silvery lateral band, margined above by Emerald stretch,



ventral edge faintly tinged green.  
Occiput with large semiform  
emerald spot. Nostrils in  
emerald spot. Suborbital pale  
green. (Agilby.)

New South Wales.



Iso natalensis Regan

Iso natalensis Regan, Ann.  
Durban Mus., vol. 2, p. 200, fig. 3,  
1919 (type locality, Durban,  
Natal). — Jordan and Hubbs,  
Stanford Public., p. 48, 1919  
(reference). — Barnard, Ann.  
South Afric. Mus., vol. 21, pt. 1,  
p. 300, June 1925 (copied).



before middle in head. Mouth  
small, terminally superior. Lower  
jaw slightly protruded in front.  
Maxillary largely concealed by  
preorbital. Teeth small.  
Interorbital broadly convex.  
Lower edge of preorbital, preopercle  
interopercle, and subopercle finely  
and evenly denticulated. Gill  
rakers fine, slender, like gill filaments.  
Scales ctenoid, large on head, in  
more or less even longitudinal  
rows above lateral line, below  
in rows slightly oblique. Vertical  
fins all more or less finely  
scaled. Lateral line complete,  
axial at first, bends down  
slightly over front of soft anal  
then slopes up till median at  
caudal base. Tubes in lateral  
line slender, rather large and  
few. Dorsal insertion postmedian



Depth  $3\frac{1}{4}$ ; head  $4\frac{2}{3}$ . Eye not quite 3 in head, longer than snout; maxillary reaches  $\frac{1}{4}$  in eye.

Scales?

D. IV - I, 16, first dorsal origin midway between ventral root and anal origin; A. I, 22.

Broad bluish silvery lateral band, margined above with blackish stripe. Length 52 mm.  
(Barnard.)

atal.



its coloration. Peters describes it briefly:

D. XI, 14; A. III, 11; P. 15; V. I, 5; C. 16. Metallic bluish, head greenish. On belly each side above ventrals narrow golden longitudinal band. Fins dark, hind caudal and lower pectoral edges yellowish.